A NOVEL OF THE FUTURE COMPLETE IN THIS ISSUE!

STARTLING STORIES

WINTER ISSUE

15¢

BUY WAR BONDS AND STAMPS FOR VICTORY!

A THRILLING PUBLICATION

THE *Giant Atom*
An Astounding Complete Novel
By MALCOLM JAMESON

THE LAST WOMAN
A Hall of Fame Classic
By THOMAS S. GARDNER

BLACKOUT IN THE OPERATING ROOM!

A true story of the war, as told by SISTER ISABEL NIXON, *Head Nurse of St. Thomas Hospital, London,* to a war correspondent.

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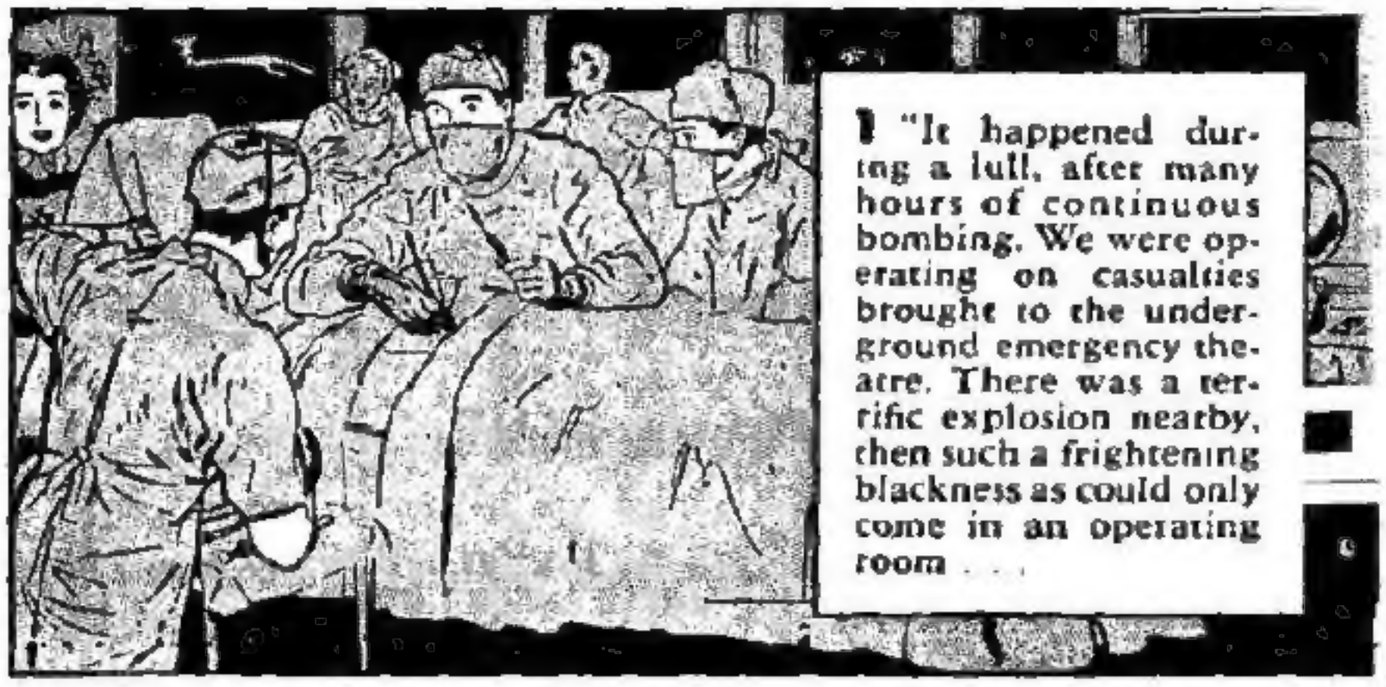

1 "It happened during a lull, after many hours of continuous bombing. We were operating on casualties brought to the underground emergency theatre. There was a terrific explosion nearby, then such a frightening blackness as could only come in an operating room . . .

2 "That single stray bomb had shattered the two outside electric plants. It would take time to rig up the emergency plant. Meanwhile we had a victim on the operating table, in danger of bleeding to death. I told all the nurses and medical students to get their flashlights

3 "We grouped around the table, giving the surgeon the light he needed to save his patient . . . Because of the highly inflammable ether we couldn't have used a hurricane lamp. This was one of many, many cases where only flashlights with proper batteries could have been used to save life."

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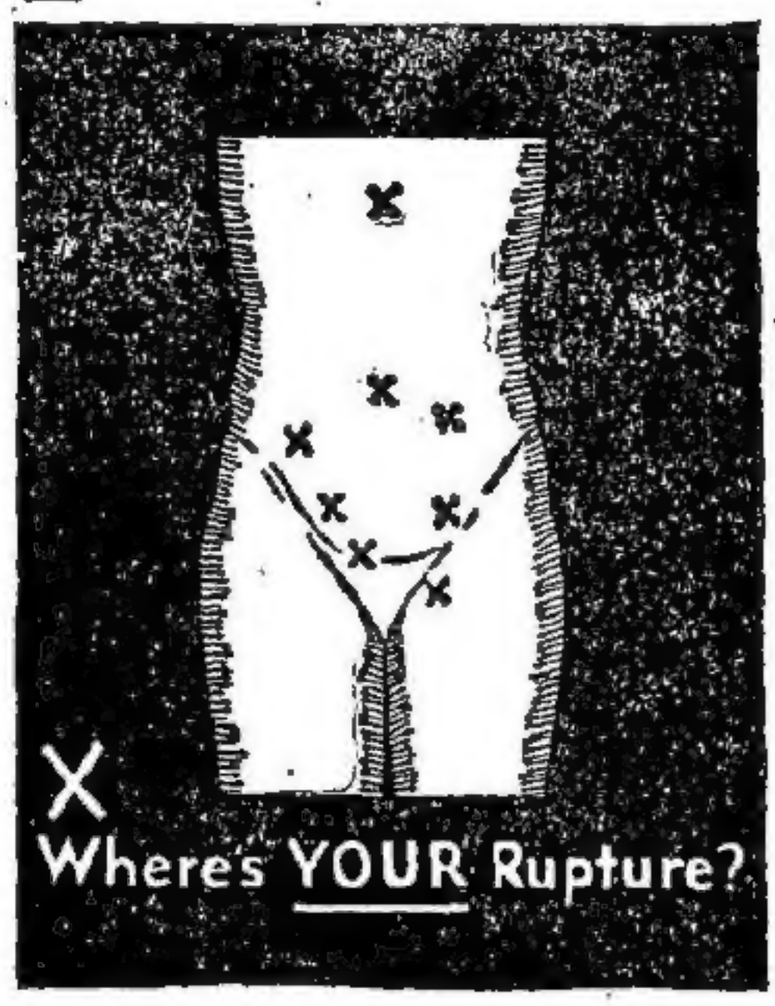

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STARTLING STORIES

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A Complete Book-Length Scientifiction Novel

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Cover painting by Earle K. Bergey—Illustrating "The Giant Atom"

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Companion magazines: Thrilling Wonder Stories, Captain Future, Popular Western, Thrilling Mystery, Thrilling Western, Thrilling Detective, Thrilling Adventures, Thrilling Love, The Phantom Detective, RAF Aces, Sky Fighters, Popular Detective, Thrilling Ranch Stories, Thrilling Sports, Popular Sports Magazine, Range Riders Western, Texas Rangers, Everyday Astrology, G-Man Detective, Detective Novels Magazine, Black Book Detective, Popular Love, Masked Rider Western, Rio Kid Western, Air War, Exciting Detective, Exciting Western, West, Exciting Love, Army Navy Flying Stories, and Rodeo Romances.

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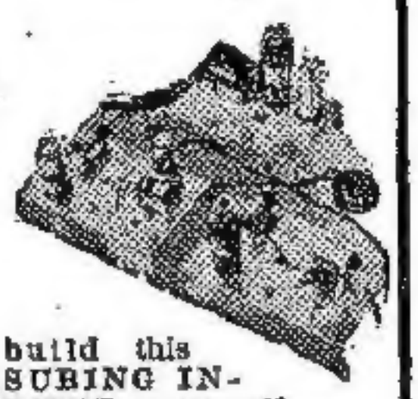

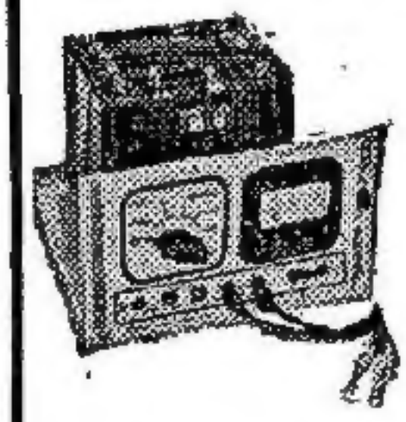

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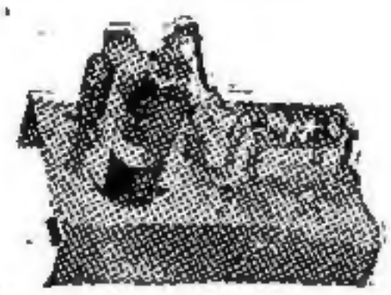

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A Department Where Readers, Writers and Sergeant Saturn Get Together

YES, I know you are hungry—ravenous is the word—so if you little space ogres will quiet down while the old Sarge unlocks your cages, we will strip the flesh off the bones of next issue's cargo and let you gnaw on the manifest. All right, gather gently about the central chart table, and *don't* jostle! You will set the senior astrogator's head to throbbing again.

Oh-oh, set the automatic robot-pilot and look here! Have we got a prize cargo for next issue, or have we! Norman A. Daniels returns to STARTLING STORIES with a complete booklength novel called THE GREAT EGO. This is the story of an innocuous little man who studied the works of black magic, gave them a scientific twist, and became more than a mouse—by a very great deal.

Just what happens in this stirring novel of today in its setting of the black arts it wouldn't be fair to explain. But you remember SPEAK OF THE DEVIL? Well, this story goes a couple of steps beyond that novel in a fantasy concept. And just to be sure that all you readers understand and fit right in with the mood of the yarn, Virgil Finlay has done a thorough job of illustrating it.

There! That ought to hold you space harpies for a little while.

As a companion yarn, our Hall of Fame Classic will be THE POINT OF VIEW, by Stanley G. Weinbaum. Sure, there will be other short stories, a new set of THRILLS IN SCIENCE, several other interesting features and articles, and—of course—this tranquil department where you and I foregather to meditate calmly on the crass stupidities of authors and letters—and letter writers.

ETHERGRAMS

SUPPOSE we start acting normal now. Okay, Wart-ears, put on your head-phones and close your receiving key. Let's have a few flashes—hot or cold.

The first communique is from a kiwi 'way out there and yonder, where the mountains meet the sky and they dig potatoes by the stateful for all the army K.P. lads.

PRAISE FOR THE FALL ISSUE.
By Clinton Blackburn

Dear Sarge: The Fall issue was pretty go Bergey does get a passable cover once in a whi doesn't he?

PIRATES OF THE TIME TRAIL was a ve very, very good tale. Don't let them get too f fetched, though.

The two shorts were good also, and the Hall Fame story was the best one printed for quite while. But—ye gods—who was the misbegotten cr ture who made the terrible *smear* for the Hall Fame story and got it by as an illustration?

I do hereby have a grudge against W. S. Bur son. He actually stated a dislike for trimmed edg Can it be that he does not know of the fine qualit of trimmed edges? Somebody do something the poor fellow—but quick!

I noticed quite a number of fans reversed th opinions of Ray Cummings after reading his no last issue. Of course, there were a few who ha knocked Ray so much that they would be emb *rassed to admit a reversal of their opinion.* I wo der if that could refer to the fifth letter printed the June issue? Hmmm.

I will now sign off, with a case of Xeno to y Sarge, for your able handling of THE ETHER V BRATES.—*St. Anthony, Idaho.*

The illustration for the Hall of Fame ya was the original drawing that went with t story, Kiwi Blackburn. As for the rest your comments—you pick your own figh with the other pee-lots. The old Sarge h enough to do in charting this course. B thanks for the Xeno.

Here's a flash from farther west:

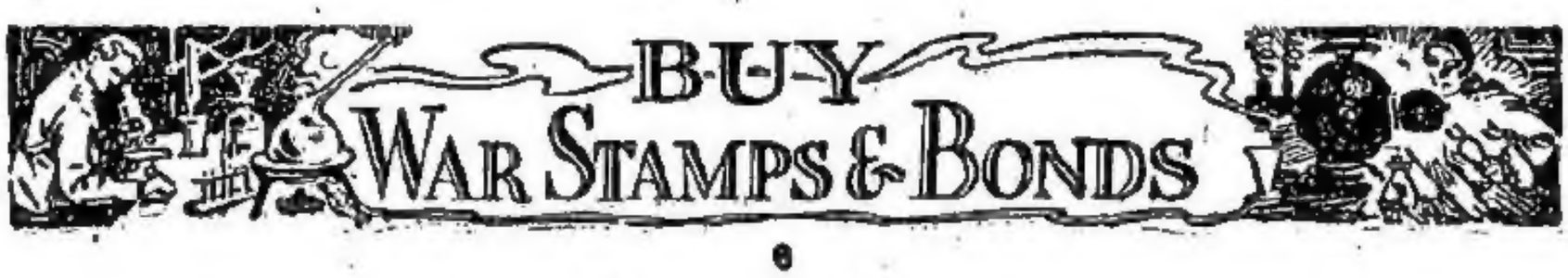
"PIRATES" IS A PIPPIN
By Raynard Matucci

Dear Sarge: Ross Rocklynne really wrote a pi pin of a story this time! "The Monkey and t Typewriter" was another excellent story. But "T Space Dwellers" was lousy. Reprinted by popul demand, huh? I think you put that story in becau it was the only one you had on hand for that.

For once Bergey did an excellent job on the cov I really liked this one for "Pirates of the Ti Trail." All the departments were excellent. U more letters in THE ETHER VIBRATES. Bett not give Laura Lee a swig of Xeno—it might p her to sleep and make her dream she is the herol of "Wings of Icarus." (Heh, heh—just kiddi Laura. If I had some roses, I would send you a Ross Rocklynne a crateful of them.) I hope R can write another excellent story soon.—*1210 E 30th St., Tacoma, Wash.*

Okay, Kiwi Matucci, glad everything is right except the Hall of Fame story. Y will note that Pee-lot Blackburn, in line ju ahead of you, doesn't agree with you in th opinion. But why point that out? You do care—and neither does Pee-lot Blackbu You'll each stick to your own opinion.

(Continued on page 8)



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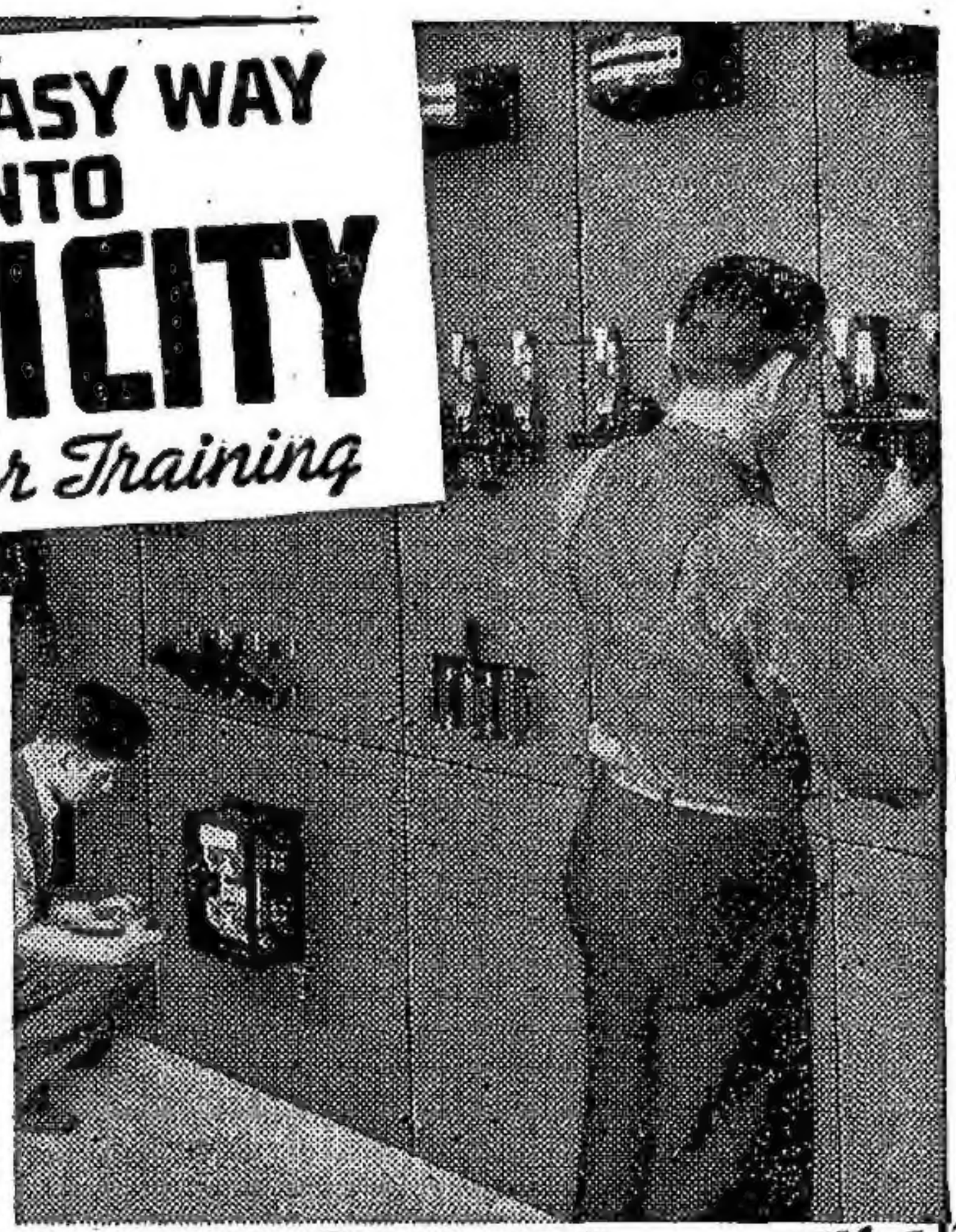

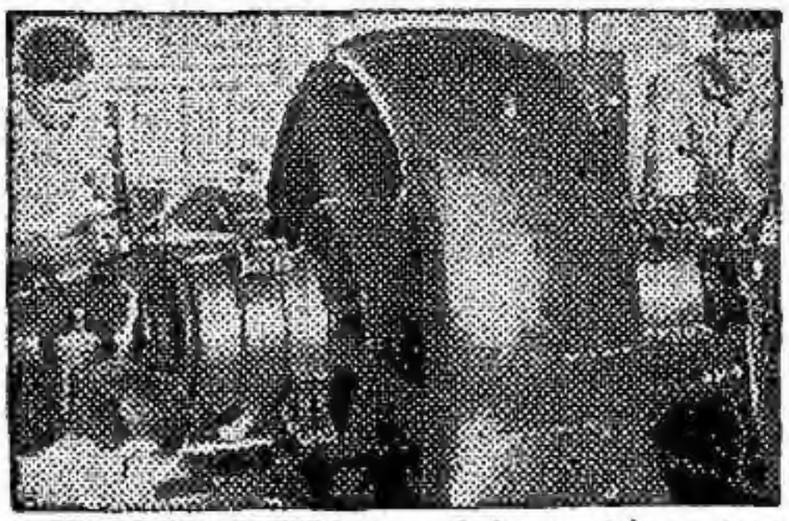

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THE ETHER VIBRATES

(Continued from page 6)

why should the old Sarge work up a heavy sweat?

STARTLING STORIES IN 1-A

By Ed. Farnham

Hi, Sarge: Ya old Xeno tank. Greetings:

Just finished the Fall issue of STARTLING STORIES. The entire mag rates 1-A plus!!

By golly, if you put out a mag like this one (Fall) I am going to subscribe regularly. Can this be done? And how do it be dooed?

"Pirates of the Time Trail" is the most interesting story of any I have yet read. I sat up till 4:30 a.m. till I finished it.

Good luck to you and S.S.—*1139 E. 44th St., Chicago, Ill.*

Nice of you, Kiwi Farnham, to put STARTLING STORIES in the first draft class. We'll certainly try to keep the old ship right up there in the van. And whom are you calling a Xeno tank?

Take a glance at this bit of personal correspondence, juniors.

WORTH RE-READING

By Francis T. Laney

Dear Sergeant Saturn: I wish to thank you very much for the reviews of my fanzine, THE ACOLYTE. I have picked up a number of subscribers through your columns, and have also made contact with several other fan publishers. I must apologize to you for not sending a copy of my fourth issue until this week.

The fall issue of STARTLING STORIES, generally speaking, pleased me very much. It is difficult for me to decide on my favorite of the issue, but THE SPACE DWELLERS is probably the best. Despite certain faint traces of datedness, this tale (for me at least) carried quite a convincing atmosphere of reality—and that is something I demand. Rocklynne's opus had a bit too much action for my rather quiet tastes, but on the other hand most of it was explainable and well-motivated. The underlying idea—all these worlds of if—intrigues me greatly, and from the amount this has been running through my mind I'm pretty sure I'll want to reread it. And there are mighty few pulp tales that one does care about reading a second and third time. The other two shorts left me cold—MONKEY & TYPEWRITER seemed rather silly, and I disliked the insincere artificiality and tinsel flash about SECRET WEAPON.

Generally speaking, I think STARTLING'S art could be improved, particularly the covers; but on the other hand, I buy stfzines for their content. Those who want to look at pictures should get an art magazine of some kind. I think that the worst feature of the magazine over a group of issues is the Xeno chatter of friend Saturn. This was not completely unclever when started, but over a number of months it gets pretty forced and tiresome. I for one would like to see the "jive talk" gradually moderated until it disappeared altogether.

The next time some goof objects to your untrimmed edges, you might suggest to him that any printer will gladly trim his magazines for ten cents or so each, if it is that important to him. For my part, I prefer the rough edges, for the simple reason that I feel you should stress good stories rather than trivia which one notices only when they are absent.

My file of STARTLING goes back (with a few regrettable gaps which I hope to fill) to your second issue, and, for my money, you have as high a percentage of GOOD stories (worth rereading), as any of your competitors, and a lot higher one than some of them. I think one of the main reasons for your preeminence is the book-length. It just isn't possible to develop the full background for an alien civilization, or some event of the far future, in a four or five thousand word story; and your recognition of this fact has given us some very choice items.

It is a peculiar thing, but—though the mags are uniform in format and edited by the same gang—I don't like TWS nearly as well as I do STARTLING STORIES. If I knew why, I'd tell you. Perhaps the Hall of Fame series is what turns the tables, or perhaps the somewhat longer novels make the difference—I don't know.

In a couple of weeks, I'm going to send you a copy of my FAPA fanzine (Fan-Dango), but it is NOT for review. It so happens that I made a number of remarks about STARTLING STORIES in my lead article, and I thought you might like to read them. In any case, a rehearsed and revised article enabled me to "say what I think about your mag" a lot more clearly than I could in an unpremeditated letter. I'll mark the article so you won't have to wade through a mess of FAPA bull.

Keep SS coming, please!—*720 Tenth St., Clarkston, Wash.*

You write such a straightforward letter, Kiwi Laney, that you leave little room for comment. So the old space dog won't worry your letter to pieces. You present several comments and opinions which will doubtless raise an argument on the floor of the astrogation chamber, so the old Sarge will just sit back and watch the fireworks.

BERGEY A GOOD ARTIST

By Robert Moore

Dear Sarge: Excuse the pencil but I couldn't find the ink. This is the first letter I have written to a magazine. I am only 13 years old, but I like science fiction mags very much. STARTLING STORIES is among the best (although CAPTAIN FUTURE is better). Now as to how I like your book. The cover—very good. Bergey is a good artist.

"Pirates of the Time Trail"—excellent. How about some more Rocklynne stories? "The Monkey and the Typewriter"—good for a short.

"The Space Dwellers"—very good. Pick some more good Hall of Fame stories.

"Secret Weapon"—good.

The special features—very good, especially The Ether Vibrates.

Before I sign off I would like you to explain what Xeno is, and how you pronounce it.—*430½ So. 4th St., Terre Haute, Ind.*

The only thing about your letter, Pee-lot Moore, that requires answering is your naive inquiry about Xeno. That is the private vice, sin, and shame of your senior astrogator. It is liquid dynamite—and you don't pronounce it. You drink it. If you must know how to say it, pronounce it ZEE-NO—and leave the rest to Sergeant Saturn.

DOUBLE FEATURE

By Harrison Stone

Dear Sarge: I started reading STARTLING STORIES when the June ish came out.

Cover good. "Wings of Icarus," 5 xeno jugs. Amazing. More, more and more of this type of story.

"Planet X," 4½ Zeno jugs—very good.

"Ghost Planet," 4 jugs.

"The Ideal," 2 jugs.

"Son of His Father," 1 jug.

I liked that issue, but this Fall issue is sensational!

"Pirates of the Time Trail," 50 Xeno jugs.

"Space Dwellers," 30 Xeno jugs.

"Secret Weapon," 25 Xeno jugs.

"Monkey and the Typewriter," 1 Xeno jug (terrible, take it away).

Features okay.

So long, I'll be seeing you soon.—*750 S. 53rd St., Phila., Pa.*

One thing about Kiwi Stone—he covers a lot of space with a few words. He reviews two issues and shoves off with the same wordage that most of you pee-lots require for your opening paragraphs. Windy sort of chap, isn't he? Blast on!

BINDER'S ERROR

By Kent Bone

Dear Sarge: You remember Kuttner, don't you? You know, the guy with the letter in the fall issue of S.S., the guy whose classmates call him the Mad Scientist, because he wants to build a Rocket Ship and fly to Mars.

(Continued on page 10)

They Never Knew It Was SO EASY To Play

Thousands Learn Musical Instruments By Amazingly Simple Method

No Teacher, No Musical Knowledge Required. In a Short Time You Start Playing Real Tunes! 750,000 Now Enrolled

"Thar's Gold in Them Thar Hillbilly Songs." Craze for mountain music, "swing" and other popular forms has brought fame and fortune to many who started playing for the fun of it. Thousands have discovered unexpected pleasure and profit in music, thanks to the unique method that makes it amazingly easy to learn.

HINK of the fun YOU are missing! The popularity, friendship, good times! Why? Because you think it's rd to learn music. You have an idea that it's a slow, lious task, with lots of boring drills and exercises.

That's not the twentieth-century way! Surely you've heard news! How people all over the world have learned to y by a method so simple a child can understand it—so scinating that it's like playing a game. Imagine! You rn without a teacher—in your spare time at home—at a t of only a few cents a day! You learn by the famous nt-and-picture method—every position, every move before ur eyes in big, clear illustrations. You CAN'T go wrong! nd best of all, you start playing real tunes almost at once, m the very first lesson.

No needless, old-fashioned "scales" d exercises. No confused, perplex- g study. You learn to play by play- g. It's thrilling, exciting, inspiring! o wonder hundreds of thousands of ople have taken up music this easy y. No wonder enthusiastic letters ke those reproduced here pour in om all over the world.

Sound interesting? Well, just name e instrument you'd like to play and e'll prove you CAN! If interested, ail the coupon or write.

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New York 10, N. Y.

Learned Quickly at Home. "I didn't dream I could actually learn to play without a teacher. Now when I play for people they hardly believe that I learned to play so well in so short a time." *H. C. S., Calif.

Send for FREE Booklet and Print and Picture Sample

See for yourself how this wonderful self-instruction method works. Sit down, in the privacy of your own home, with the interesting illustrated booklet, "How to Learn Music at Home." No salesman will call—decide for yourself whether you want to play this easy way.

lted to Parties. "Be- I took your course ldn't know one note music. Then three nths later I started play for dances. I've n invited to many ties. The course is y and interesting." M., Vancouver, C.

Well Worth Money. "The course is fully self explanatory. When one is finished with it there is little one need learn. It is well worth the money and I fully believe you have the finest course on the market today." R. E. G., Clarksburg, W. Va.

Surprised Friends. "People who hear me play don't understand how I do it. They ask if I haven't had lessons from a teacher. To their surprise they find I haven't. I'm glad to be a student of your School." *M. H., Athol, Kans.

*Actual pupils' names on request. Pictures by Professional models

U. S. SCHOOL OF MUSIC
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I am interested in music study, particularly in the instrument indicated below. Please send me your free booklet, "How to Learn Music at Home" and the free Print & Picture Sample.

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Piano	Trumpet, Cornet	Piccolo	
Guitar	Reed Organ	Modern Elementary Harmony	
Hawaiian Guitar	Tenor Banjo		
Violin	Ukulele		
Piano Accordion	Drums and Traps	Mandolin	
Plain Accordion	Trombone	Practical Finger Control	
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The man, a well-known explorer and geographer, tells how he found these strange methods in far-off and mysterious Tibet, often called the land of miracles by the few travelers permitted to visit it. He discloses how he learned rare wisdom and long hidden practices, closely guarded for three thousand years by the sages, which enabled many to perform amazing feats. He maintains that these immense powers are latent in all of us, and that methods for using them are now simplified so they can be used by almost any person with ordinary intelligence.

He maintains that man, instead of being limited by a one-man-power mind, has within him the mind power of a thousand men or more as well as the energy power of the univer which can be used in his daily affairs. states that this sleeping giant of mind pow when awakened, can make him capable of su prising accomplishments, from the prolongi of youth, to success in many fields.

The author states the time has come for this long hidden system to be disclosed to the Western world, and offers to send his amazing 9000-word treatise —which reveals many startling results — to sincere readers of this publication, free of cost or obligation. For your free copy, address the Institute of Mentalphysics, 213 South Hobe Blvd., Dept. 521-F, Los Angeles 4, Cal Readers are urged to write promptly, as on a limited number of the free treatises ha been printed.

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STANDARD ART STUDIOS, 100 East Ohio St., Dept. 403-W, Chicago

THE ETHER VIBRATES

(Continued from page 8)

Well, I have the same ambition, only I want to farther than Mars.

Now for the routine rating of stories, special fe tures, etc.

1. "The Space Dwellers," by Raymond Z. Gallu The best Hall of Fame Story I've ever read. some more stories by Gallun.

2. "The Monkey and the Typewriter," by Willia Morrison. I think it was good, all in all, but know somebody will disagree with me.

3. "Secret Weapon," by Joseph Farrell. I thi I would have rated it 3rd if it had been the Pages 113 through 116 were missing, which h about ½ of a page of story.

4. Last and least "Pirates of the Time Trail," Ross Rocklynne. Dull! Rocklynne went into much detail.

Cover: It followed the description in the sto BUT why don't you let someone besides Berg draw it?

Special Features.

1. "The Ether Vibrates." Sergeant Saturn.

2. "Review of Fan Publications." Sergeant Sa urn.

3. "The Safety of Your Country." John D Passos.

4. "Thrills in Science." Oscar J. Friend.

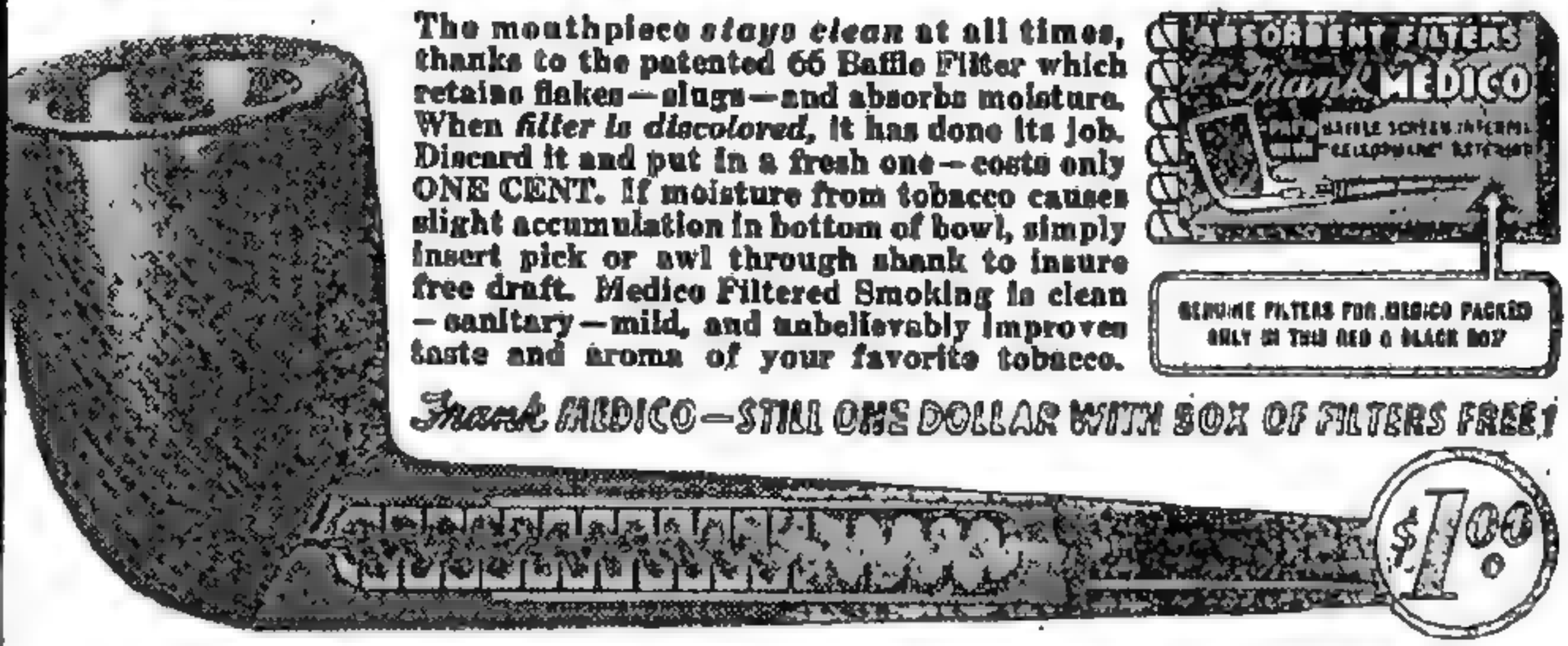
5. "Meet the Author." A Department.

"This Startling War" was on page 113 and pa 113 was not there.—*3177 Ferris Avenue, Detro Michigan.*

Sorry about your hashed-up copy, Ki Bone, but occasionally a binding machi drops a stitch—even as you and I. The ne time that happens, take the faulty copy your magazine (any magazine) back to yo newsdealer, and he will gladly exchange it f you. Maybe you can still work up a deal wi him on your present copy, if you throw in second-hand bicycle pump and a couple of ru ber washers.

PIPE CLEANERS ARE ESSENTIAL WITH

MEDICO FILTERED SMOKING



The mouthpiece *stays clean* at all times, thanks to the patented 66 Baffle Filter which retains flakes—slugs—and absorbs moisture. When *filter is discolored,* it has done its job. Discard it and put in a fresh one—costs only ONE CENT. If moisture from tobacco causes slight accumulation in bottom of bowl, simply insert pick or awl through shank to insure free draft. Medico Filtered Smoking is clean—sanitary—mild, and unbelievably improves taste and aroma of your favorite tobacco.

Frank MEDICO—STILL ONE DOLLAR WITH BOX OF FILTERS FREE!

Comes now a fresh sort of report from a ee-lot private in the Engineers Replacement raining Center.

MILK VERSUS XENO

y W. S. Burgeson (pvt.)

Dear Void-Wit: Heh heh. Bet you're surprised hear from me again, eh? Well, life is full of ttle surprises, you know. Just thought I'd tell you at I've just finished the Fall ish of S.S. Found it ite good, too.

Well, how has life been treating you? And, come think of it, why?

Hmmm. I'll be darned, can't think of any sassy marks, so I'll just have to go over the Fall ish d be content.

The cover: Quite a piece of art. What does it pict; lightning striking the stock yards? Worth o roses, tho', in spite of a few flaws.

"Pirates of the Time Trail": Three roses to ocklynne for a beautifully bound bundle of bouncin' venture.

Let's have more of the same in the near future, ease.

"The Monkey and the Typewriter": Not at all d, for a short. As the author says, tho', the story ould have been much better had the monkeys been ven more time. Give it one rose.

"The Space Dwellers": I enjoyed this one a lot. at STF Hall of Fame is a swell department. ree roses for the yarn.

"Secret Weapon" gets one-half rose.

"The Ether Vibrates": This is very precious! is time we find, of all things, the old Sarge boost- milk-drinking. That is indeed funny, Xeno Sop, the closest you probably ever got to milk was zing at a picture of a cow. I refer to your re- rks following the letter of Master Kuttner.

Thanks for printing my letter. It was nice of u, I think.

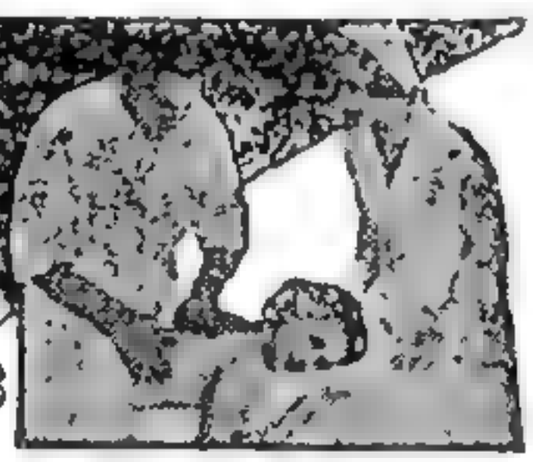
I note that one reader uses the old standby line all corny individuals: "This missile will never print." Very seedy. I find such letters in many agazines. They do it, y'know, to get their mis- es printed. I wish they'd at least change their ctics.

Like me, for instance.

(Continued on page 114)

BACK THE ATTACK WITH WAR BONDS

Learn this Profitable Profession in 90 Days at Home



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You may send me FREE and postpaid, Anatomy Charts, booklet containing photographs and letters from graduates, and complete details of your offer.

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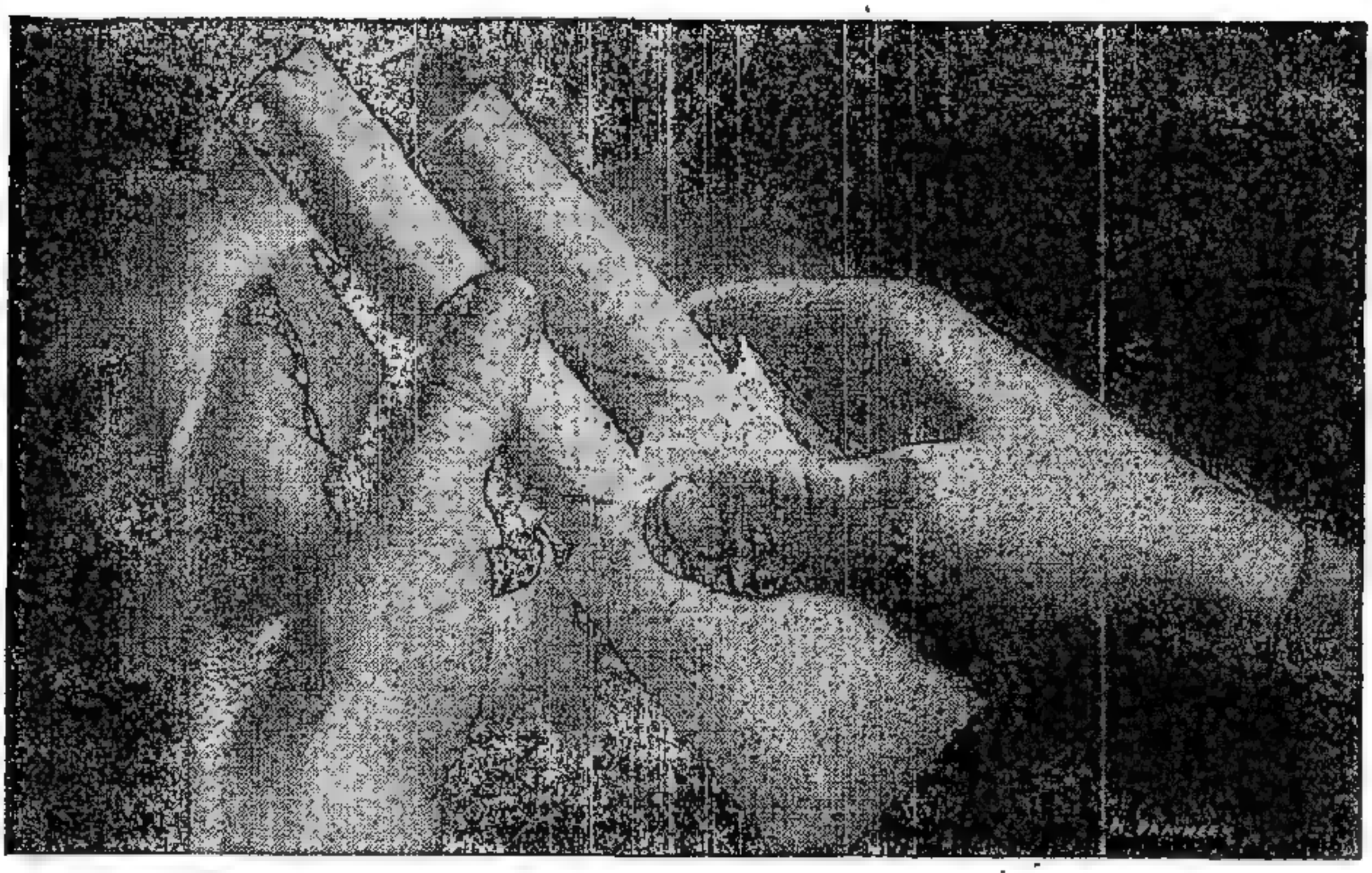


"Mister—you're getting paid in DYNAMITE!

OUR PAY ENVELOPE today *is* dynamite.

The wrong way to handle it is for us to wink at prices that look too steep . . . telling ourselves we can afford to splurge.

We *can't* afford to—whether we're business men, farmers, or workers. And here's why:

Splurging will boost prices. First on one thing, then all along the line.

Then, wages will have to go up to meet higher prices. And higher wages will push prices up some more . . . faster and faster.

The reason this can happen is that, this year, we Americans will have *45 billion* dollars more income than there are goods and services to buy at present prices.

That's the dynamite!

The RIGHT way to handle it . . . and why

Our Government is doing a lot of things to keep the cost of living from snowballing.

But the real control is in *our* hands. Yours. Mine.

KEEP PRICES DOWN!

It won't be fun. It will mean sacrifice and penny-pinching. But after all, the sacrifice of tightening our belts and doing without is a small sacrifice compared with giving your life or your blood in battle!

Here's what YOU must do

Buy only what you absolutely need.

Don't ASK higher prices—for your own labor, your own services, or goods you sell.

Buy rationed goods only by exchanging stamps.

Don't pay a cent above ceiling prices.

Take a grin-and-bear-it attitude on taxes. They must get heavier.

Pay off your debts. Don't make new ones.

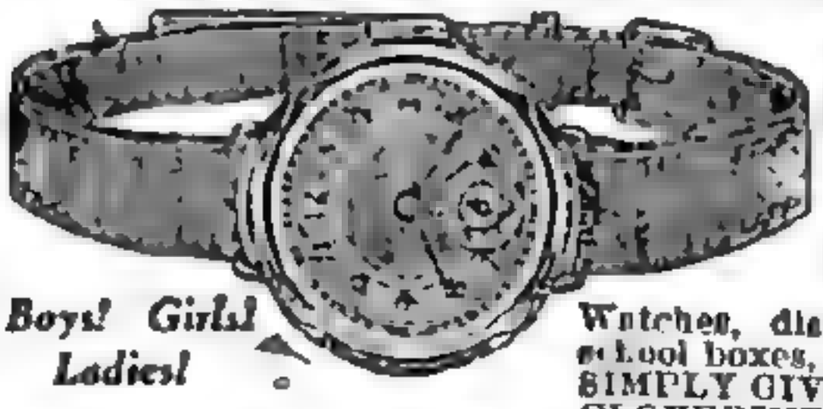
Start a savings account. Buy and keep up adequate life insurance.

Buy more War Bonds.

If we do these things, we and our Government won't have to fight a postwar battle against collapsing prices and paralyzed business.

Use it up
Wear it out
Make it do
Or do without

This advertisement, prepared by the War Advertising Council, is contributed by this magazine in co-operation with the Magazine Publishers of America.



Boys! Girls! Ladies!

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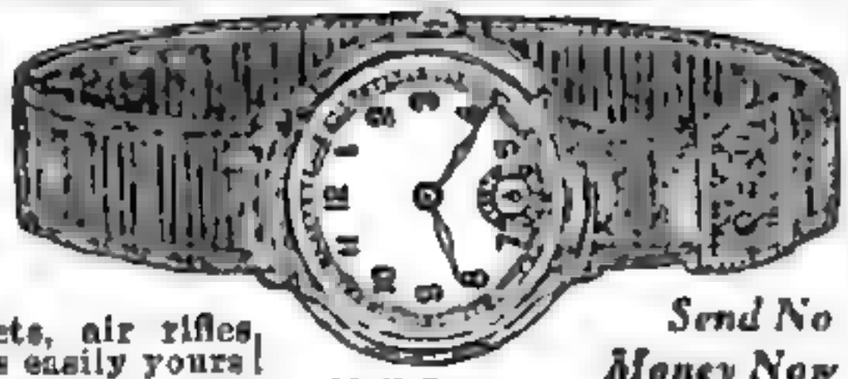
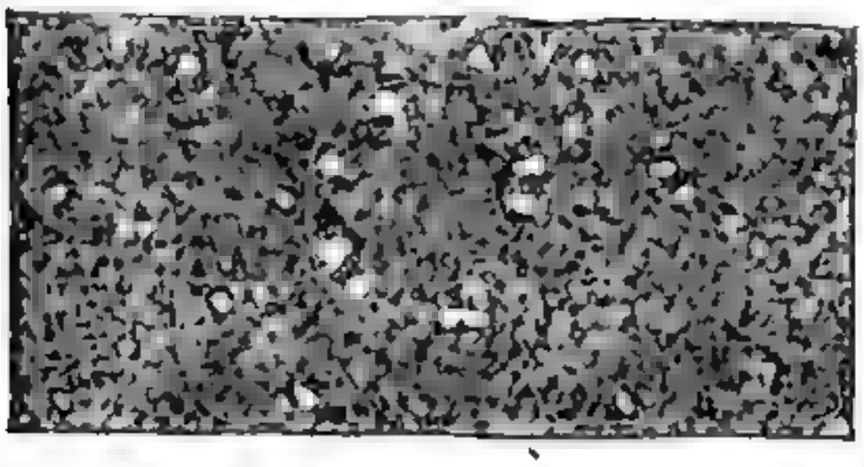


Mail Coupon

Send No Money Now

Watches, dishes, games, blankets, air rifles, school boxes, and other premiums easily yours! SIMPLY GIVE colorful art pictures with White CLOVERINE Brand SALVE for chaps, mild burns, sold to friends, 25¢ a box (with picture) and remit amounts called for under premium wanted in catalog. Watches sent postage paid. 48th year. Be first. Write or mail coupon for first trial order salve sent on trust to start. THE WILSON CHEMICAL CO., INC., DEPT. 31-A, TYRONE, PENNSYLVANIA.



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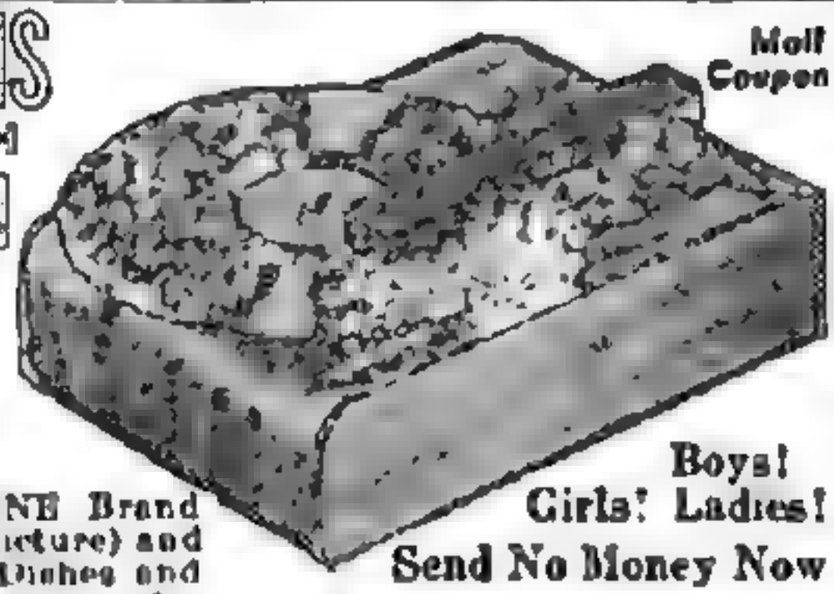
Dishes, record players, games, blankets, air rifles, school boxes, and other premiums easily yours!



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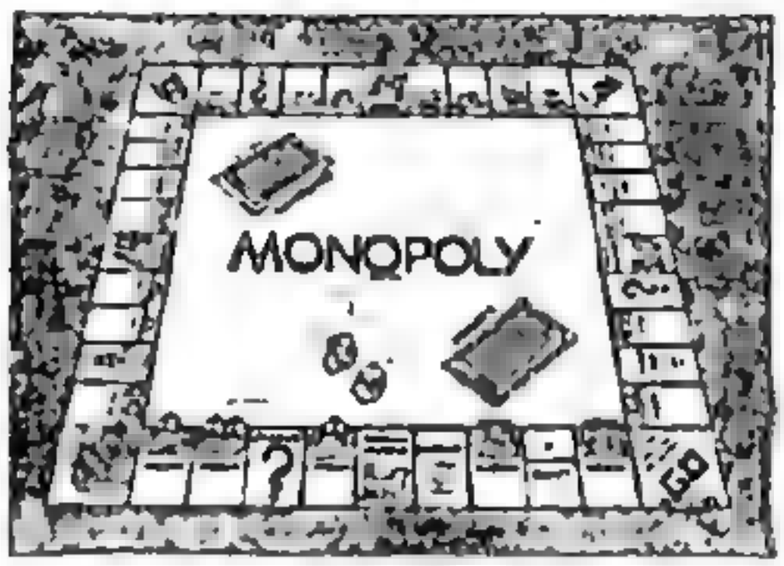


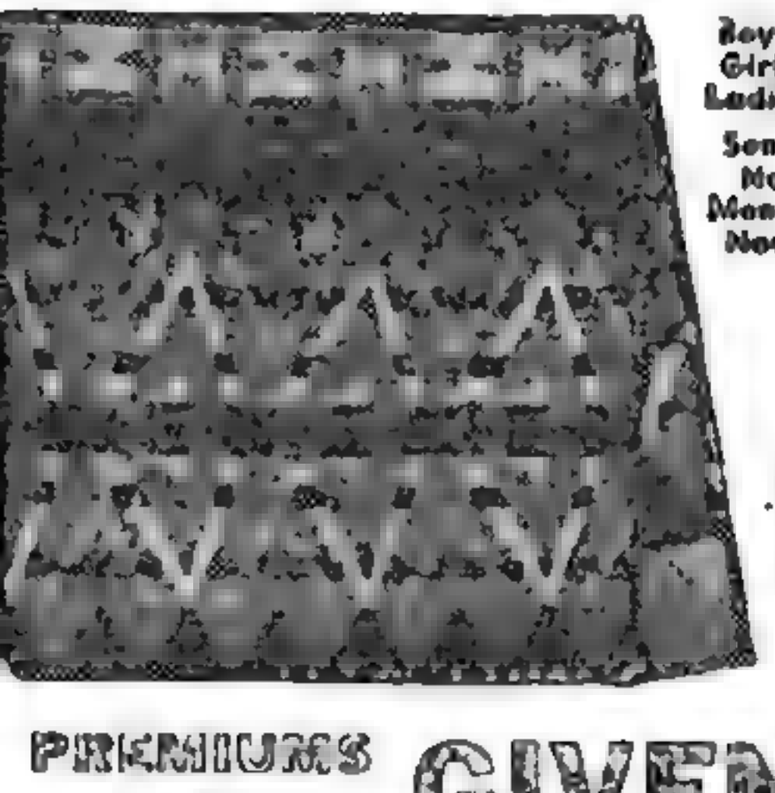
PREMIUMS OR CASH GIVEN

Games, typewriters, watches, dishes, blankets, air rifles, school boxes, and other premiums easily yours! SIMPLY GIVE colorful art pictures with White CLOVERINE Brand SALVE for chaps, mild burns, sold to friends, 25¢ a box (with picture) and remit amounts called for under premium wanted in catalog. This typewriter sent express collect. 48th year. Be first. Write or mail coupon for first trial order salve sent on trust to start. THE WILSON CHEMICAL CO., INC., DEPT 31 C, TYRONE, PENNSYLVANIA.

This Case Too

Boys! Girls! Ladies!

SEND NO MONEY NOW



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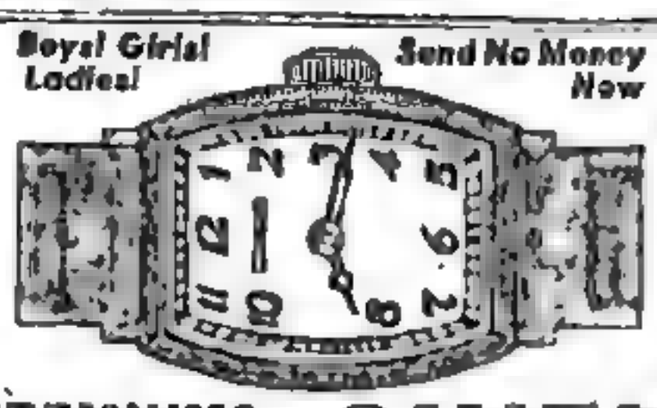

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Blankets, watches, dishes, games, air rifles, school boxes, and other premiums easily yours! SIMPLY GIVE pictures with White CLOVERINE Brand SALVE for mild burns, sold 25¢ a box (with picture) and remit amounts called for in catalog. All blankets sent postage paid. Write or mail coupon for first trial order salve sent on trust to start. THE WILSON CHEM. CO., Inc., Dept. 31-D, Tyrone, Pa.

MAIL COUPON NOW

Date.....

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Name.....

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PRINT YOUR LAST NAME ONLY IN SPACES BELOW

Paste coupon on postal card or mail in an envelope today

Note:—We pay postage on all premiums weighing three pounds or less; others sent express collect. W. C. Company.

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The Mysterious Influence In The Air You Breathe!

THE SOUL OF THE UNIVERSE is in the air you breathe. Deposited in your blood—with each inhalation you take—is *the intelligence* that directs the course of the planets through the misty reaches of space, and the strange phenomenon of life itself.

What is it that causes your heart to beat, your lungs to expand and contract? What mind directs *the cells* of your being, each in their purpose—some to create bone, others tissue and hair? What *consciousness* pervades these vibratory *globules of life* and gives them awareness of their Cosmic function?

Are you one of the millions who have looked *beyond yourself* for some external Divine Power or agency? Have you searched in vain for some outer sign or word of Divine assurance when in doubt or in need? Now learn of the *unsuspected power* that exists in every simple breath—and that becomes *part of you.* The ancient Egyptians believed that the essence of life was borne on the wings of the air. The Bible proclaims that with the first breath man becomes not just an animated being—but a *"living soul." Try this experiment,* and prove a Vital Life Force exists in the air. When you are in pain or despondent take a deep breath. Hold it as long as comfortable—then notice the momentary relief.

This Amazing Free Book

Would you seriously like to know how to draw upon this Intelligence of the Cosmic, with which the air is permeated? You can use it to awaken the creative powers of your mind, and for making life an experience of *achievement.* Use the coupon below for a free copy of the book, "The Mastery of Life." It tells how in the privacy of your home *you may learn* to use these simple, useful, *natural laws.*

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I am sincerely interested in learning how to use the mysterious influences of the universe in the betterment of my life. Please send me a free copy of the book, "The Mastery of Life."

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THE ROSICRUCIANS (AMORC) SAN JOSE, CALIFORNIA, U. S. A.

Bennion made ready to lower Katherine into the crater (CHAP. I)

The GIANT Atom

By MALCOLM JAMESON

Only Steve Bennion, Inventive Genius, and His Lovely Assistant, Kitty Pennell, Stand Between the Earth and Destruction When a Flaming Monster Threatens to Devour and Destroy Civilization!

CHAPTER I

Ace in the Hole

THE old quarry was an almost circular hole, a pit fully one hundred feet deep and with hewn walls hat rose perpendicularly from the floor f the man-made crater. For a secret vorkshop the place had been ideally chosen. It lay high up in barren and sparsely wooded foothills in a section too poor to support so much as a rabbit. People rarely came there any more, now that the quarry was closed. There was no inducement—not even for game.

Which made the purring presence of the sleek automobile all the more inexplicable. But Steve Bennion knew perfectly well what he was doing. This old

quarry some fifty miles up in the hills from the Bennion Research Laboratory belonged to him. He had spent a lot of solitary time up here, working privately on a project which he was exhibiting today for the first time.

Parking the car, Bennion assisted his lone companion out of the seat and led the way to the sheer edge of the cliff. He pointed downward toward the center of the abandoned quarry at what looked from here like a bronzed Easter egg resting on a giant ice-skate, within a stockade.

"There she is, Kitty," he said simply. "Inside that circle of dilapidated fencing. I screwed the last bolt home and made the final electrical connection yesterday. I wanted you to see her first."

Bennion's companion, a tall and unusually pretty girl, as deeply bronzed as he was, stared downward with widening brown eyes.

"Steve!" she exclaimed. "Not the completed space ship! You kept it secret while you worked on it?"

Steve Bennion smiled a trifle ruefully. "That's right," he admitted. "Now if we can just keep Bennion Research going for the few months necessary to perfect an atomic fuel—we'll be rich and famous in spite of General Atomics, Incorporated. At long last we can let the wedding bells ring out."

A shadow crossed the girl's face. She quickly tried to hide it as she moved closer, letting her arm rest against him.

"It's—it's wonderful, Steve," she murmured. "But I'm really afraid. You shouldn't have taken the entire last week off from your research work for Magnesium Metals. The bank has been calling up every day about that finance note."

"Oh, that," responded Bennion in quick relief. "They'll renew again. And as soon as we finish this job for Magnesium Metals we'll pay it off. Let's go down into the pit, Kitty. I can't rest until you've seen the first practical use for Anrad."

"How do we get down? Fly?" the girl asked, indicating the sheer drop.

Bennion laughed and stepped over to the car. From the baggage locker he took a boatswain's chair and a heavy coil of line. He led the way along the quarry edge to an old but sturdy derrick. In former days the derrick had been used to haul up the products of the quarry. Of late Bennion had used it to send down the plates and parts for the experimental space ship he had designed and built.

At the derrick he quickly rigged the bos'un's chair to the boom and rove his line through the end sheave.

"Ready," he cried. "Hop in, Kitty Shut your eyes and have faith."

Aided by her employer and fiancé Katherine Pennell got into the seat for her descent into the quarry, but she didn't shut her eyes. She wasn't the eye shutting kind. Instead, she was smiling like a gleeful and excited child, as Bennion swung her out over the abyss.

WHEN she got out at the bottom, he made the upper end of the rope secure and then slid nimbly down it. A short brisk walk across the chip-strewn quarry floor brought them to the door of the fence. Bennion unlocked the padlock and took her inside the enclosure.

"She's a beauty," exclaimed Katherine, gazing up at the gleaming metallic vessel that had been erected within the frame of a launching cradle. The daylight was fading down here, but the fine, graceful lines of the ship were evident. The sheen on its special phosphor bronze hull plates glowed brightly.

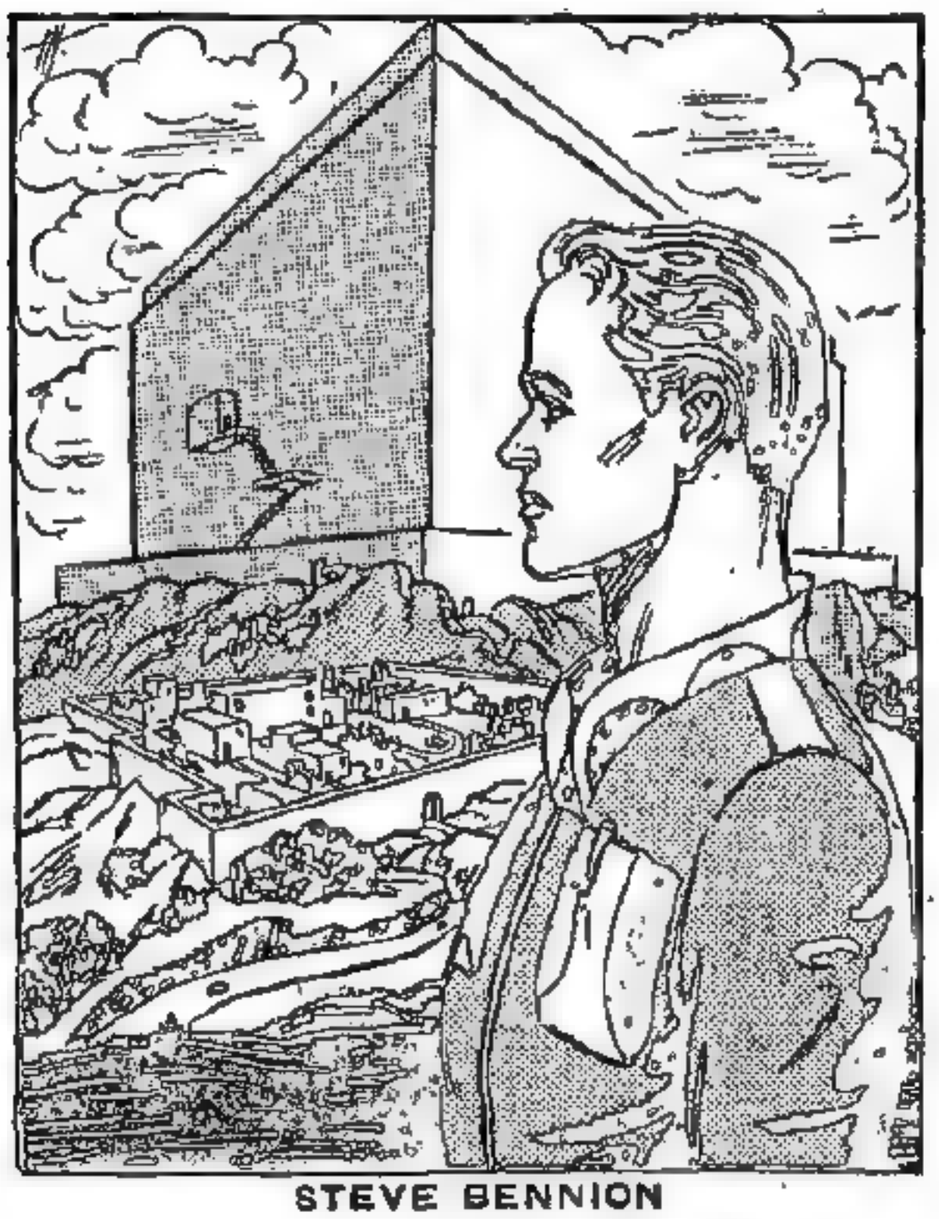
"I've named her the *Katherine*, in honor of you," Bennion said, pleased with her delight over his handiwork, for he had spent all his spare time for three gruelling years in building the craft. "Climb that ladder and I will show you what it is like inside."

The ship rested at an angle, looking much like an airplane bomb, nose pointed up. Entry could be made through a port a little over half-way forward that led into the control room. Although she gave the impression of possessing tremendous power and speed, the ship was a tiny one, hardly exceeding forty feet. Therefore the climb

was an easy one. Bennion waited at the foot of the ladder until the girl had reached the top. He gave one final proud glance toward the as yet useless driving tubes clustered about the sharp tail-tip of the tear-drop-shaped vessel. Then he climbed the ladder behind Katherine. He inserted another key and let her go in.

"It's even duckier inside," she remarked, surprised, as he snapped on the lights for her to see.

The room was circular and switchboards and instrument panels lined the walls. Kitty noticed a cabinet where



STEVE BENNION

cooking could be done. Two spring-slung hammocks indicated where its two passengers would sleep. Overhead there were a number of optical instruments for observations of the stars that would be seen through the many round lucite ports that faceted the domed ceiling.

"Anrad?" she inquired, pointing at the black curtains neatly folded back beside each of the viewports.

"Yes. The first man to hop into space is likely to get a lot of surprises. We can't know what fierce radiation is loose up there above the screen of our atmosphere. I'm taking no chances. The material of those curtains is Anrad."

"Anrad" was their abbreviation of the fuller term Anradiaphane, a substance not unlike rubber in appearance and texture, though far different in its qualities. Its composition was their own well-guarded secret, for it was one of his more recent inventions of which Steve Bennion was most proud. Anrad possessed the miraculous virtue of being able to stop the terrible Gamma rays far more effectively than even lead. A thin sheet of it, made into a garment, was a safer screen than clumsy and ponderous armor made of several inches of lead.

Bennion frowned momentarily. Mention of Anrad reminded him of unpleasant things. Given an incorrupt government, he would have patented this invention long ago. But sad experience had made him cagey. Three times before he had made application for patents on other important ideas and processes, only to have them rejected with the curt statement that the identical idea had been patented a day or so before by the powerful General Atomics Corporation.

Other independent research workers had had similar experiences—much too often to be explained away as coincidences, even if the great electronics combine did possess wonderful laboratories of its own and had many brilliant scientists on its payroll. Thus Bennion had come to the conclusion that something was radically wrong with the Patent Office. This had driven him to secrecy and taught him to keep notebooks in cipher. For, ironically enough, he was actually paying to General Atomics exorbitant royalties for the privilege of using some of his own stolen inventions!

"Have a look below," he said, more soberly, trying to dismiss the subject from his mind. He lifted a trapdoor and showed her how to climb down.

UNDER the floor of the control room were the recoil cylinders that let the floor above spring back under sharp acceleration and thereby cushion the shock of the takeoff. Below them were storerooms, air and water recovery machines, and the spare fuel bins. Lowest of all was the motor room. Up into this chamber projected the butts of the driv-

ing tubes. On top of them was built a compact little cyclotron, actuated by its own motor. Its job would be—when suitable fuel was supplied—to start it into atomic eruption.

"Well, honey, you've seen it all," said Bennion at length. "Perhaps I have been too optimistic—building the ship before the final rocket fuel has been prepared—but I know that is merely a matter of time now."

"I hope you are right, Steve," the girl said earnestly. "But something worries me. I don't know why—or how. But I do, too! I've been wrong not to tell you before. But you've been acting so much like a kid at Christmas that I hated to spoil things. Steve, a car was driven out to the lab yesterday morning and stopped near the gates. Four men got out and studied the building for a long time through glasses. And they made a lot of notes."

Bennion frowned down at her troubled face. Then he smiled.

"So they spied, eh? And what did it matter? It will take more powerful glasses than any I know of to reveal what goes on behind our lab walls. Don't let it bother you."

"I wouldn't have—only one of those men was Farquhar," she admitted reluctantly.

"What?" ejaculated Bennion. "Come on! Let's get out of here!"

The name of Farquhar startled the electronic engineer. And with good reason. Farquhar was the vice-president and general manager of the greedy General Atomics Company. Whenever he showed a personal interest in a plant or a man, that plant or man was as good as gone. He was ever anxious to acquire brains as well as equipment and completed inventions—always on the cheapest terms.

Thrice already had Steve Bennion been cheated of the just rewards for his work. Now, one of the few surviving independent research engineers, Bennion thought of that overdue bank note. One of General Atomics' favorite tricks was to catch a man in a neat financial trap and then give him the choice of ruin or going to work for the monopolistic company that wrecked him.

More deeply concerned than he wanted his secretary and assistant to know, Bennion hustled her out of the ship and down the ladder. Hastily padlocking the heavy fence door behind him, Bennion left the girl to follow and bounded across the quarry in great leaping strides. By the time Katherine reached the waiting sling chair, he was almost at the end of his feverish overhand climb up the rope to the top of the pit. Without waiting for a breather, he began hauling her up.

Within two minutes they were careening down the rough mountain trail, heading back toward the laboratory at a furious and dangerous speed.

"When I came up here with you today," the girl explained breathlessly, "I left Billy on guard at the gate. I instructed Mike not to leave the office until we got back. They would die for you, Steve. Please, why the great hurry?"

Bennion laughed shortly, harshly.

"You don't know that pirate Farquhar like I do, Kitty," he said grimly. "No danger of Billy and Mike having to die for me. Those General Atomic burglars are too smooth to do things in such a clumsy manner. Their strong-arm squad is made up of clever lawyers and grasping bankers. I thought I was preparing an ace in the hole in building the *Katherine*, and I may have been asleep on a more important job."

The car was on the paved road now, and the going was smoother. Bennion's foot was pressed hard against the accelerator, and the car fairly roared down through the foothills.

"Oh!" exclaimed Katherine faintly. Then: "If things do get bad, Steve, could we get together another stake by selling the little space ship?"

"No!" he shouted fiercely. "Nobody could use it without proper fuel, and those leeches have drained my brains long enough. I'll destroy the *Katherine* with my own hands before I'll let those bloodsuckers go crawling around through her. We can't afford to let

As the mine exploded the brow of the hill was crowned with smoke and flame (CHAP. XI)

General Atomics have the *Katherine*. They must never know, even that she has been built! The *Katherine* is ours alone. I won't even proceed with my fuel research as long as she is in jeopardy!"

Thirty minutes later they roared around the last curve and came into view of the research laboratory. What they saw sent a foreboding chill through their hearts!

CHAPTER II

Whipsawed

SEVERAL cars and trucks were parked before the plant gate, and that stood wide open. Most of the vehicles displayed the arrogant trademark of General Atomics, but two of them were police cars. Several policemen were guarding the gate, and overalled strange workmen swarmed in and out of the building.

Bennion brought his car to a screaming stop and leaped out. He strode over to the nearest policeman.

"What is going on here?" he demanded.

The cop shrugged, but pointed to a typewritten notice wired to the fence. Bennion gave it only a glance, for its heading told him what it meant. The document was entitled, "Notice of Execution of Foreclosure and Dispossess." Bennion stormed past the grinning guards and into his own front yard. Four men on ladders were affixing a sign over the door of the laboratory. The sign said, GENERAL ATOMIC CORPORATION — BRANCH PLANT 571-A. Coming out the door was Mr. Price, the assistant cashier of the bank. Price tried to avoid Bennion's angry glance, but could not, so instead he sheepishly tried to explain.

"You mustn't blame us for this, Mr. Bennion," he whined, "we had no choice. After your last renewal the bank examiner ordered us to get rid of your note. So we sold it to one of the big city banks. General Atomics must have bought it from them. I swear—"

"Save your breath," interrupted Bennion bitterly, "though you might have told me sooner."

"It would only have worried you," said the other. "We knew you didn't have any money and couldn't do anything about it, anyway—"

Bennion planted a hand against the man's chest and shoved him out of his way. He was licked and he knew it, but that did not compel him to be polite to liars and hypocrites. Then he was face to face with his real adversary.

Farquhar, massive and overbearing, was the next to step out the door.

"Ah, Bennion," he declared with an oily smile, "I've been expecting you. Although your mortgage was a blanket one, covering as it did land, buildings, equipment and furnishings, we do not want to make things hard for you. I'll give you a few minutes to gather up any strictly personal belongings you and your most delightful secretary may have left behind."

Bennion stopped dead in his tracks and looked the man over with boiling scorn. He never wanted worse to sock a man, but he restrained himself. Farquhar was perhaps fishing for it, and he had witnesses and cops around him by the dozen. So Bennion took firm hold of himself.

"I'll be out of here in five minutes," he said. "But get this, Farquhar. You haven't seen the last of me."

"Why, of course not, my dear boy," exclaimed Farquhar. "Naturally you are excited now, and a little disgruntled. But I do expect to see you again. After you have cooled off we want you to know General's latchstring is always out. You can keep on running this laboratory if you like and without the pain of worrying over expenses. We take care of those and pay you a good salary, too."

Bennion did not bother to answer that. Followed by the girl, he just walked by the man. Inside the office they were treated to a still more disgusting revelation of General Atomic's methods. A photostat machine had been set

up and a gang of operators were busily photographing the pages of Bennion's diaries and notebooks. Not that it made any real difference, for Bennion had long known of their practice and was prepared for it.

His file cases—even the locked ones marked "Special and Confidential"—had been carefully stuffed with harmless and meaningless records of routine laboratory. His real records he kept in his head, or else in the four or five compact notebooks that he and Kitty never failed to keep on their persons. And even those were in a cryptic code of their own devising, and the key to that they carried in their heads. The only item of real value still in the laboratory was the roll of blueprints covering the construction of the *Katherine*.

IT TOOK Bennion only a moment to dig that out and have it firmly in his hand. It had been left on a table in a workroom in full sight all the time. But no one had molested it, for the outside was plainly marked, "Plan for New Heater Unit to be Installed in Watchman's shack at the Gate." Farquhar's spies were hunting for bigger game. Meanwhile Kitty had packed a brief case with a few things from her own desk. After a brief word to their former employees, there was nothing to do but go.

"Where to?" asked Kitty, taking the wheel. She had refused to let Bennion drive, knowing his furious mood. She did not relish road travel at a hundred and more miles an hour.

"To Northburg. I'm taking you home to your father. There are also some matters I want to talk over with him."

It was late at night when the car rolled through the tree-shaded streets of Northburg, the sleepy town that was the home of Northburg Tech. It drew up before the rambling brick house where Dr. Pennell lived. He was the director of the Institute of Electronics and had been Bennion's beloved and respected teacher. He met them at the door, for they had stopped long enough to phone him they were coming.

The two men sat until late in the library, talking.

"You are up against a hard proposition, Steve," Dr. Pennell was saying, "There are some government jobs, but they are poorly paid and the work is dull routine. I would gladly give you a professorship here, but you couldn't stand that, either. A year ago our trustees accepted a fifty-million-dollar endowment from General Atomics and since then we've been their pawns."

"But surely, there must be a *few* independent labs still operating?" said Bennion, savagely. "I simply must find a place where I can work on the atomic fuel for the rocket."

Pennell stared at the rug. That was not an easy question to answer. There were a few, to be sure, but they were run by men of mediocre caliber and he knew that they would not want to have under them a man of Bennion's brilliance.

"There is Elihu Ward's workshop," ventured the old man after a long pause, "but I hesitate to recommend it. I know little or nothing about the man or what he is doing, but rumors reach me. I understand he is playing with the transmutation of elements. One report even has it that he is scheming to construct elements of higher atomic number than Uranium."

"Pretty ambitious," remarked Bennion. "Why, a man who would monkey with elements up in the nineties and hundreds might set the world afire. My own belief is that if such elements exist at all, they are in blue dwarf suns. Who is this guy?"

"Hallam, one of your classmates, is with him. And young Carruthers. They seem contented enough."

It was Bennion's turn to stare at the rug. The old man's recommendation was only lukewarm, but Ward might be an out. Bennion had to have a job, and quickly, for he must start saving money for the new stake.

"I'll take a shot at it," he announced abruptly, snapping out of his reverie. "Where is his place?"

"It is on a high hill near the Catskills, not far from the town of Fox-

boro. But I had better give you a letter. They say he is a hard man to see."

Foxboro was the next stop, the bus conductor told him, many hours later. Bennion started. He had been daydreaming again. Half his thoughts were behind him with his loyal Katherine Pennell. Just before that last passionate embrace of farewell he had entrusted her with his secret notes and blueprints.

Now he was clean of anything that would be of value to a competitor except for the undersuit he carried tightly rolled into a small package. That was a union suit of Anrad, complete with head hood. He brought it along to ensure his own personal safety. In this new place he might bump into radiations too powerful for standard lead suits to shield.

The bus drew to a stop in the center of the town. It was a pleasant town and larger than he expected to find. But he did not linger around sightseeing. He made inquiries at once how to get out to the lab. The reactions to his questions were astonishing. Several men said they didn't know, and hurriedly walked away. Another man mumbled something angrily and turned his back. After a number of such rebuffs Bennion found a taxi driver.

"How do you know you can get in?" asked the driver suspiciously, giving Bennion a hard look. "I don't want to soak you five dollars and then have you squawk."

"I can get in," said Bennion, quietly.

"Humph," the driver sniffed. "A lot of 'em say that, but blamed few do."

"I've got a letter to Mr. Ward," explained Bennion, and sat back in the cushions.

THE surly driver slipped in his gears and they were off. After a time they came to a narrow side lane down which the car turned. Then the road began to climb. In many places it was too narrow for two cars to pass, so when a descending car was seen just ahead, the driver pulled over to the side and waited for it. The other came on slowly, for there was scant clearance between the two. It was then that Bennion got a surprise. There was a man in that car of familiar face and build. And the man was Farquhar!

Farquhar locked glances with him. Evidently he thought he had not been recognized, for he suddenly went into a paroxysm of faked coughing. He clapped a handkerchief over his bowed face and kept it there until after the cars had separated. Bennion leaned over and asked his driver what else was up this road besides the Ward plant.

"Not anything," growled the driver. "When Ward built his castle, he bought all the land for miles around, evicted the people and tore down the houses. That's why Foxboro folks don't like him. And I tell you, mister, if it was night now I wouldn't be taking you there at all. It ain't safe. You might get shot at." He shook his head dubiously. "Funny fellow that Ward, and a screwy outfit he must have. Most guys like you don't get let in, and those that do don't ever come out again. That heavy set man we just passed is the only one I know that comes down again after he goes up."

Bennion accepted that information in silence. He was trying to digest what he had just heard and explain it to himself. Ward's desire for extreme privacy was understandable enough. Hard radiation is destructive to life and difficult to shield completely. Unless he deliberately made the country a desert about him, he might be ruined by damage suits. The reason for strict rules as to entry into the plant was equally clear. Experimental work was not only dangerous, but confidential. But what of Farquhar? For Bennion was certain it was no other. Was he casing Ward's place as a preliminary to another squeeze play here, or was there an alliance between the two men? The answer to that Bennion could not know, but his curiosity was excited.

They began to pass signs that said "Slow—Danger," and "Stop When Bell Rings—Blasting Ahead." Bennion guessed that that was used when the super cyclotron was in operation, and that approaching cars were to halt where they were until it stopped. Then they

turned the shoulder of the hill and he caught his first view of the laboratory. He gasped, for there was nothing like it in the world—not even Atomic's giant plant in Kansas.

The driver had referred to it as a castle. It did look like one, though a bare and featureless one. It resembled a huge near-cube of lead, perhaps three hundred feet square and half that tall. There were no openings in it, but up one face climbed open work iron stairs like a fire escape. These terminated about halfway up in a room that jutted out on brackets from the leaden building proper. Later Bennion was to learn a group of bungalows and other buildings consisting of living quarters, offices, auxiliary laboratories and such, stood farther down the hill, protected by another leaden wall.

"Phew!" whistled Bennion, trying to gauge the tens of thousands of tons of lead that had gone into the structure, and of its cost. How could a man like Ward get such backing? And what monstrous super-machine did such a colossal shell house?

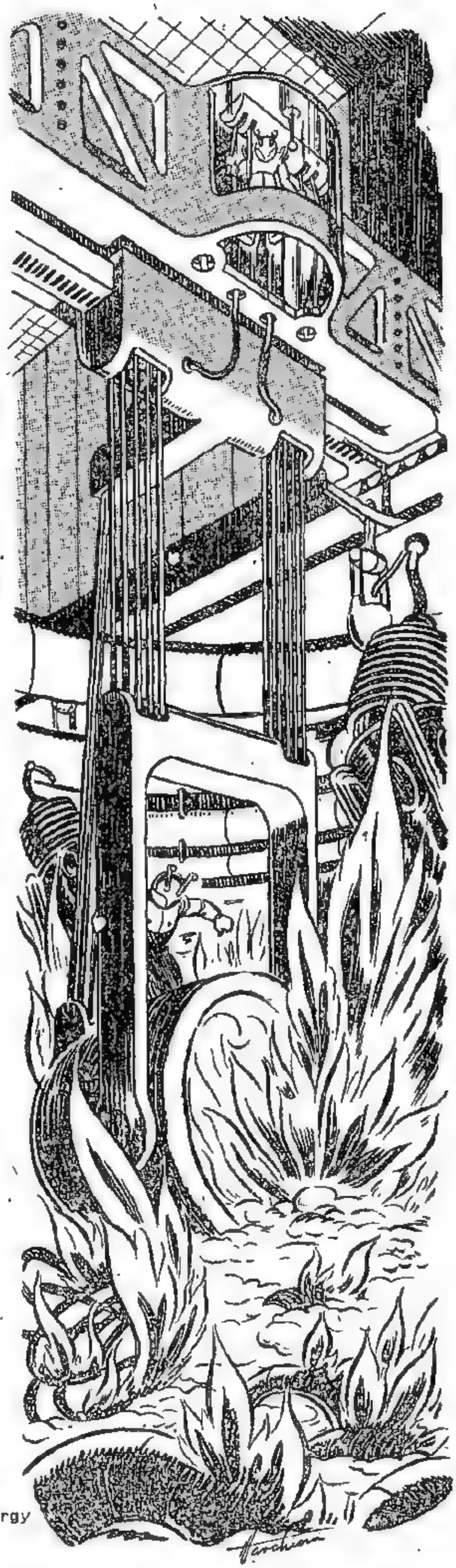
"Shall I wait?" asked the driver, coming to a stop at a sign that forbade further passage by vehicles. It was still a good quarter of a mile up to the gate.

"No," said Bennion. "Don't wait. I'm staying."

CHAPTER III

The House of Dread

THEN Steve Bennion received another jolt. The closer he drew to the flood-lighted, high-voltage-guarded, woven barbed wire fence, the more the place before him looked like a prison or a fortress. The four hard-faced guards inside grimly watched his approach with wary interest. Two of them carried tommy-guns at the ready. But when they called him to halt a few paces outside the gate, and demanded his name



Bennion watched the ball of energy enter the lad e (CHAP. VII)

and business, he was amazed by the sensation his name caused. The guns were lowered, and one of the men jumped to unlock the gate. Another went off at a trot toward the nearest of the brick buildings of the office group.

"Excuse us, Mr. Bennion," apologized a guard, "we didn't know what you looked like, that's all. The boss told us to expect you."

"Yeah?" said Bennion, but he walked on in. He relinquished his bag to another guard, but chose to keep his packet in his hand. Then he let them take him to Ward's office.

"How are you, Bennion?" greeted Ward, rising and offering a hand. "Ever since I read in the papers of your hard luck out in Tennessee I have had a hunch you might show up. A good many of the men who've been frozen out by General Atomics come here. I don't talk to many of them, though. Elihu Ward wants only the best. Your reputation, naturally—"

"Thanks," grunted Bennion. His brain was racing. To begin with there had been no mention of the foreclosure in any newspaper he had seen. Nor did he care for the man before him. Ward was a stocky, bald individual of the high pressure salesman type, and Bennion was not fond of the glad-hand, back-slapping technique. And that business of Farquhar's recent visit—

"I presume you are looking for a new connection," Ward said, going straight ahead. "If that is so, you've come to the right place. I am proud of my plant—the finest in the world—and the gang of real experts associated with me. I say associated, for this is a truly cooperative venture—share and share alike. I am sure you will be happy here. I am so sure of that I have already prepared a contract. Here it is. Sit down and read it. Take your time, my dear boy."

Bennion took the long legal document and noted that the bulk of it was in incredibly fine type. It was a thing that would require an hour to read and probably deserved a month's scrutiny by a keen lawyer. The only salient features of it that stood out in readable type were: that he was offered a five-year contract with the Elihu Ward Associates, Inc., and that his salary was to be one hundred and twenty thousand a year plus all expenses. On his part he was to contribute freely of his services, and the product of his work was the property of the group.

"All that fine stuff is practically meaningless," said Ward hastily. "Actually we live here like one big family. One for all and all for one."

Bennion's lips narrowed. For his eye roving the sheet picked out one line buried deep in the text. It was to the effect that he would live in guarded quarters and have no communication with the outside world except through the censorship of Ward himself. An inch below that he found the startling news that a hundred thousand of his annual salary was not to be paid until the end of the five-year period. Then it would be paid in stock! Bennion would have accepted a lot less—if it had been in cash. This contract was tricky and unfair.

"Before I sign anything," said Bennion, without revealing his thoughts, "I'd like to see your plant and how you work. Five years, you know, is a long time."

For a moment Ward did not look pleased. Then he forced a grin.

"Of course I can't expect a man as clever as you to sign up without seeing how you live or what you are to do," he said. "By all means look the place over. When you see the fascinating work laid out for you, you'll probably be willing to come with us for nothing but your keep. Look!"

HE POINTED to some heavy metal pigs in the corner—cylindrical chunks about three feet high and nearly that much across. One was gold, another silver, and the third a metal that Bennion did not at once recognize.

"We poured those yesterday. One is synthetic gold—think of it. Made out of an equal weight of common dirt dug from the hill here. Down in the vault we have an equal amount of pure metal-

lic radium. That was this morning's run-off. This afternoon we are going to be bold. We intend to jump way up in the atomic table and try a really breath-taking piece of synthesis—Eka-Gold!"

"That ought to be pretty strongly radioactive," remarked Bennion.

"Violently so. Look, here is what Hallam computes its properties to be—liquid at ordinary temperatures, like mercury. Luminous and orange-colored. Then follows a long list of rays that are predicted to come out, and its half-life will be but a matter of a few days. Why, radium will be as harmless as putty compared to it."

"I would like to see it made," said Bennion. He would have felt a lot easier about being present at this daring attempt if he had Hallam's figures for a quick once-over first. But he knew that that was out of the question. He would not be let into any deep secrets until after his name was on the dotted line.

"Here comes Carruthers," said Ward, glancing out the window. "I'll turn you over to him until we put the big show on."

It should have been a good lunch they had in the officers' dining room. Present also were Hallam, two lieutenants of the guard, an analytical chemist, and a couple of engineers from the power house. But though the food was excellent and well served, everyone wore a strained air. Hallam became so jittery he got up and stalked out of the room in the midst of the meal.

There was absolutely no effort made by any present to keep up a conversation. It made Bennion think of a bunch of condemned men waiting for their turn to do the last mile. But the depressing meal was soon over. Bennion, on the pretext of washing up, went to his room for last-minute preparations. He wanted to get that Anrad garment on next to his skin, for he had the growing conviction that there would be not a few casualties before the day was over.

While he was slipping his clothes off his mind flashed once at the tight spot he was in. It was a safe bet that he could not get out the gate now on any terms.

Bennion shrugged. A curious blend of scientific interest and plain curiosity drove him on. He drew on the tight fitting undersuit, and then proceeded to cover it with his ordinary clothes. It was hot and awkward to wear such a garment, but not so awkward as to be caught in a beam of fifth order Gamma rays without it. Bennion had seen more than one fried remnant of a man dragged out of a heavy lead suit.

"All set?" called Carruthers, through the door.

"Rarin' to go," replied Bennion, and went to meet him.

They ducked through the zig-zag opening that pierced the first barrier wall. From there they climbed to the foot of the iron stairway that lead up the side of the main building.

"How thick are those lead walls?" asked Bennion.

"A hundred feet," replied Carruthers in a matter-of-fact tone. "Not all of it is lead, only a foot on the outer face and nine for inside lining. The rest is barium concrete. Figuring barium cement at one tenth the resistance of lead, it comes out to twenty equivalent feet altogether. It stops most everything, though leaks do occur."

Bennion could only blink. He had worked on some grand conceptions, but nothing that equaled Ward's project. Either a madman or a genius had thought this one up, and Bennion had seen too little to be sure of which.

The square iron box at the top of the stairs proved to be a large locker room, subdivided into smaller compartments. An attendant handed Bennion a lab suit which bore a prominent number. He went into one of the booths, slipped off part of his ordinary clothes and into the lead armor. It was thicker and heavier than any he had seen. There was a radio-power pickup on the shoulders and a small motor box.

BENNION found that he could move about in the suit quite easily; due to some magic of inner levers and gears.

The helmet matched the suit. It was a straight globe, without eye-panes, and

as blank in front as behind, except that two small horns stuck up out of the crown where the eye-panes would have been. After Bennion had it on, he found it a marvel of comfort, barring the feeling he was on stilts. For he saw through periscopes that ran up into the little horns. He heard and talked through regular helmet circuits. He found the air good and plentiful.

He joined the gang of robot-appearing monsters waiting at the yawning door to the inner passage. Like himself, each man there was numbered—for ready identification. They tested phones and found out who was who.

"Let's go," said Hallam, but his tone was more that of a man in desperation than of a man selected to make cosmic history. Without a word the metal monsters shambled after. Again they traversed a zig-zag tunnel through the mighty wall. At the end of it they did not come out into a great central hall, as Bennion expected they would, but to a "T". It was a transverse passage—a lateral running around the hall. Hallam and part of the men went one way, Carruthers and Bennion the other.

"Along here there are still nine feet of lead between us and *it*," said Carruthers in a tense, hushed way. The way he pronounced that fateful "it" was enough to make a man's skin crawl. There was awe and horror in his voice.

They went on, turned a corner, and started down a long passage. Halfway down it they came to another offshoot to the right. Carruthers slowed down as he approached, and at that point he came to a dead stop. Bennion looked at him curiously, for he seemed to be swaying on his feet. He put out a hand to steady him, but Carruthers brushed it off.

"I'm all right," he muttered thickly. "Just a little nervous, that's all. You get that way after awhile. Three more steps and we'll be in the booth, with nothing between us and *it* but shuttered lead-glass lookout ports. You'd better leave the shutters up and stick to the periscope."

"Okay," said Bennion. He was plenty nervous himself, but he wouldn't have admitted it.

Bennion heard Carruthers catch his breath with a quick panicky sob, and then the click as he shut his transmitter off. After a moment, Carruthers started forward again. Then they were in the booth. Bennion focused his periscopic eyes on the switchboard that stood there. Then he knew exactly what to expect. For it was his own design—one he had made several years before when he was younger and less experienced. It was a big idea he had had that time, but it wouldn't stand rechecking. He abandoned it and laid the papers away. Later he had missed them, but thought the loss of little importance. He supposed that General Atomic's spies must have stolen them, but he didn't care. This particular invention was more of a hazard than an asset.

A loud speaker on the wall blared.

"All guards have manned their stations in the corridors. Engineers and operators please take theirs and make reports. We pull the switch in five minutes."

Bennion stepped to the doorway and looked out—by the way they had come. Two armed guards were in the long corridor at the turn.

"Well," he thought, as he twiddled with the eyepiece of the booth's periscope through which he hoped to watch what went on in the great hall below, "Maybe this is it."

Carruthers' trembling voice came in. "West wall booth manned and ready."

There was a long, tense wait.

"Alert! Stand by!" came the raucous warning over the loud speaker.

CHAPTER IV

The Fat Falls into the Fire

WHEN the signal buzzer sounded, Carruthers began throwing switches and pushing buttons. Bennion shifted his attention to the outside. He applied his helmet periscopes, and

began sweeping the hall.

It was a rectangular room, and he could see into all parts of it. The huge machine that sprawled in the middle of the floor, on a circular disk, he knew at once was a giant hyperspiro—a development of the one stolen from his files. Waiting for the warming-up currents to have effect, Bennion studied it with intense interest, especially the added features. The machine resembled a snail laid flat, or rather a colossal French horn on its side. It was a coil of tapering tubing, diminishing inward from a huge bell muzzle until toward the center the tube was no thicker than ordinary garden hose. At irregular intervals on the inspiral were attachments of wires for the reception of booster current.

Up to that point there had been little alteration of the fundamental invention. It was a new-style cyclotron, operating on a different principle than the earlier models. A bank of powerful tubes—giant tubes standing eighteen feet high—fed streams of electrons into the bell muzzle, where they were caught up by systems of magnets, boosters, and other expediters and sent whirling inward at ever-increasing speed and pressure. The taper of the tube caused the whirling electrical particles to bunch together densely, and that, combined with the effect of the continual addition of power, resulted in their being delivered completely scrambled, formless, and raving with disorganized energy.

"They made no alterations to the disintegrator element," thought Bennion.

It was the other features of the machine that puzzled Bennion. Where the central plate should have been, there rose a complicated system of bright helices, one coil of silvery wire within another. Enormous electromagnets dangled from traveling cranes overhead, and these were grouped around the rising coils of wire. Above the last helix a slender pipe curved up and over in a sort of gooseneck.

Bennion took that to be the delivery pipe, for a smaller crane running on a lower craneway was poised over it with a pot ladle hanging from its hook. From his higher position, Bennion could see that the ladle was lined with some whitish substance, probably a special fire clay. Remembering the ingots Ward had shown him at the office, Bennion was confident that the finished product was expected to pour into this bucket.

"I see," he concluded, just as he heard the warning signals preparatory to turning on the main electron stream. "This big gadget they have added is the *re*integrator. It takes the scattered particles of the busted up atoms and rebunches them to fit whatever atomic structure they want. I guess they made their gold and silver all right, and maybe some radium. But how the heck can they be sure that they really know how an atom of Eka-Gold is arranged? Once the curve runs off the paper, nobody knows which way it will turn."

Bennion took his attention away from the machine outside. He was worried about Carruthers' jumpy nerves and the convulsive way he was operating his switches. Since the whole dangerous performance was delicate in the extreme, the slightest slip on the part of any of the control operators might mean an explosion of indescribable violence. Once that torrent of pushing, angry electrons got out of control anything might happen—the demolition of the entire mountain, perhaps even a raging, unquenchable atomic fire that would spread inexorably to engulf and destroy the world.

"JK circuits four and five," came the order over the annunciator, "using billion-volt increments."

"JK four and five in," acknowledged Carruthers shakily, as he cut in the current. "One billion—two billion—three —four—"

"Stop at five," directed the voice of Hallam. "When needle is steady, throw in the whole Q series in numerical order, voltage according to plan."

"Check," said Carruthers. He seemed to be getting a grip on himself.

BENNION turned back to the periscope. The men who had been working on the floor were now huddled

behind lead barriers in the corners. The cranemen overhead had ducked into their own special hiding places. There was no sign of life except the drone of the great transformers and the continual flickering of multicolored lightning as leaking current raged from point to point. The giant tubes glowed angrily, and at some points on the incurving spiral the metal was white with the heat of the fierce rushing atom bits within. At the center, where the disintegrator met the reintegrator, the machine was so hot as to be unbearably incandescent. Bennion marveled at Ward's having developed an alloy that would not instantly vaporize under the intolerable heat that it must be exposed to.

"Attention, men," called the annunciator voice again. "The first stage of reintegration is stable. Stand by to throw in the special circuits. As soon as that is done, boost all pressures one hundred per cent."

"Now it comes," thought Bennion, as he saw Carruthers cringe, despite the bulky leaden armor he wore about him. This was the moment they all feared. It was now, if ever, that someone would break. Bennion never took his eye off the man at the board.

The signal came, and Carruthers went through most of the operations correctly, though at times his hand jerked as if uncontrollable. What worried Bennion most about the rattled operator was that in his agitation he had thrown off some of the safety connection. The safeties hampered quick operation, but they prevented an accidental or erroneous combination of circuits. When untold amperes at billions of volts meets a like current of opposite polarity, something has to give!

"Start specials!"

"Specials started," whimpered Carruthers, "f-ffour g-gee—t-ten AX—eleven AX—now five G—"

He reached across the board to shove in the 5-G button when one of his fits of spasmodic jerking seized him. His awkward leaden arm brushed against a row of open switches that should have been protected by the safeties. Bennion's horrified eyes saw them being slammed home to their connections. In another tenth second there would be no laboratory—no hyperspiro—no Ward or Bennion or anybody. There was only one thing to do and Bennion did it. He launched himself across the room like a thunderbolt and yanked open the master switch that fed juice to the entire board.

It was a drastic step to take, but there was no other remedy. The wailing of tortured circuits and the thunderous crash of the no-current circuit-breakers popping out was hideous and deafening. But Bennion knew that whatever damage had been done could be repaired. The other way there would have been nothing left. He carefully reset the switches as they should be for picking up the current again, attached the safety connections, then opened the main switch again. For an instant he had some doubts as to what would happen next, but the instruments and gauges went at once to normal. The momentary cessation of current apparently had done no serious harm.

"It's all yours again," he said to the terrified Carruthers, who was sagging helplessly in his saddle. "But watch your step, kid. You blame near killed us all that time."

Carruthers pulled himself together somehow and went on with his switch-throwing. Bennion turned away, to go back to the periscope. As he did, he found himself face to face with another man. The suit of armor bore the numeral one.

"I saw that, Bennion," came the harsh voice of Ward. There was a metallic sarcastic ring to it, as if he were gloating over a personal triumph. "I thought an experienced lab man like you would know the law. Did you ever read what it says about unauthorized persons tampering with electronic switchboards? Don't you know that interference with a qualified operator may bring life imprisonment? Or death? Think that over, Mr. Stephen Bennion."

"Death?" laughed Steve Bennion,

icornfully. "Execution couldn't make ne any deader than we all would have been if I hadn't interfered."

"That will be your story, of course," said Ward coldly. "Let us see whether you can make it stick. The law—"

"You are playing with cosmic fire, Ward," broke in Bennion, his voice full of loathing for the man, "and that is a dangerous game. Cosmic fire knows no law but its own. If you expect to live much longer, you'd better learn some of those."

ABRUPTLY, Bennion wheeled, stalked to his periscope and looked out again. He was angry then, too angry to say more. But the moment he looked out he forgot his anger. Things had changed. The incandescence now enveloped the whole machine, and bubbles of purple vapor kept coming from the downcurved delivery spout of the reintegrator. Bennion then thought he saw what every electronics engineer had always dreaded—the beginnings of collapse of the monster cyclotron. It was slow and gradual, but in another moment he saw it was happening. Parts of the tubing were sagging, others puffing out in huge blisters. One of the vertical helices melted in places, and fell apart with a blinding shower of sparks. Before he could see more, his attention was diverted by the bedlam that was breaking loose over the inter-communication system.

He listened. The news was incredibly bad. Generators were running away, distribution panels were melting under intolerable overloads. Units were blowing up, hurling torn men outward with their own fragments. Switchmen died of heart failure at their stations, or fainted.

Circuit after circuit was failing. All hell was loose.

Carruthers had fallen face down on his panel. He did not answer when called to.

Ward had scurried into a corner, where he stood, trembling. Bennion did the only thing he could. He opened the master switch again and watched the few remaining meters die. Then he took another look at what was happening on the main floor.

The hyperspiro was still collapsing. The towering reintegrator had fallen, and now lay in a semi-molten mass on top the cyclotron. Now that the current was off, that had cooled to a dull red, but at the center there still existed a spot of intense brilliance. Slowly that spot contracted until it was only a few feet across, then but a dozen inches, then no larger than a dime. Yet as the incandescent area grew smaller, it grew more intense.

The tiny spot poured forth an unbearable brilliance that hurt Bennion's eyes, even though it was filtered through several thick lenses and underwent several reflections.

It was amazing how such intense light could emanate from a blob of cooling metal.

The aspect of the thing changed again. Bennion saw now that it was not a hot spot on the metal, but a little pellet of intensely luminous substance that danced about or floated in a small pond of molten metal in the midst of the wreckage of the hyperspiro. It reminded him of the behavior of a particle of sodium cast upon water. And it seemed to be consuming the stuff it swam in! The puddle of melted metal slowly dwindled and its level sank.

"What do you make of it?" asked an anxious voice behind him. It was Ward's voice.

"Ask Hallam," said Bennion curtly. "This is his show."

"Hallam is dead," said Ward. "It's your show now. Write your own ticket, but extinguish that bright thing down there." His voice rose shrilly toward the end, and Bennion knew that the man was scared. "Look again . . . see if it's growing . . . no, let me look."

Bennion relinquished the periscope. Ward had no more than put his eyepiece to it than he broke down in sheer fright.

"We're lost," he screamed, "the world's lost! We've set an atomic fire!"

Then he lumbered blindly from the booth, muttering hysterical gibberish.

CHAPTER V

Atomic Fire?

NOW the incessant rattle of the Geiger counters had risen to a roar. Other special instruments were recording rays of unprecedented intensity and of strange composition. Gamma, X, S3, and Z-rays predominated, but there were others. Atoms were disintegrating in vast numbers. Bennion read the ominous warnings and was thankful for his protecting undersuit of Anrad. No wonder the men on the floor had died. Which caused him to think of Carruthers.

Carruthers was still slumped across the switchboard, but low mutterings came through his transmitter—gibberish, drooling sounds. No doubt his brain was fried, but he was still alive. Bennion managed to get him up and out the door to the better protected inner passage and behind nine feet of honest lead. There he let him slide to the floor, thinking that the guards would take him away. After which he returned to the empty booth.

What he saw through the periscope was profoundly disturbing. The spot of dazzling light which at first appeared to be hardly bigger than a pin point was larger and far more intense. It fluctuated irregularly, and at times it changed color in its pulsations, though for the most part it was a blinding, bluish white. Bennion thought to slip the lead lens covers over, and to his astonishment he found he could still see it clearly.

What could the thing be? He studied it through the lead filter, for he could actually see it better that way. Through the lead it could be seen to be about the size of an ordinary marble. He hung there watching it for nearly an hour. It grew visibly, often by fits and starts. He saw also that it lay much deeper in wreckage of the hyperspiro. That wreckage continued to melt in the vicinity of the object, feeding it with its molten juices. For Bennion was sure that was part of the explanation. If it grew, must grow at the expense of somethir else, and there was certainly no mo power being fed to it.

Bennion guessed from the silence c the phones that everyone else had fl from the building. He knew he was ris ing his life by staying in the fearf radiance, but he wanted to know t explanation of that fierce sparkle. Pro ably the fate of the building depend on it—perhaps that of the nation. Y he felt reasonably certain that it w not atomic fire.

He resolved to go closer to it, b when he reached the passage he foun that Carruthers still lay where he ha put him. Bennion ripped a length c copper cable from the now usele switchboard. He fashioned a drag noo and towed him to the dressing roo outside the heavy wall.

Thoroughly frightened attendan helped Bennion get the man's helmet of but Carruthers was dead. There was n skin on him—it had been cooked awa leaving only the raw underflesh. An the penetrating rays must have wrecke his inner organs.

"That makes twenty," said the a tendant, "and all the rest badly burne You'd better go down to the dispensar sir, and let them look you over."

"Oh, I'm all right," said Bennio though he lied when he said it. Har radiation is insidious stuff. You don feel it when it hits you. It is like lyin on the beach on a cloudy summer da only to discover the next day that yo are blistered from head to toe. Bennio was now beginning to feel the tell-tal tingle of skin burns, and his throat an eyeballs felt dangerously dry. Th closefitting Anrad suit was hot an sticky, too.

"I'll strip and have a shower," sai Bennion, "and then take a little res Please bring me a sandwich and as Mr. Ward to come up here. I want t know more about the layout of thi plant."

THE attendant moved off promptly It seemed odd to Bennion that he

a stranger, should be the one to hang on and try to think a way out of the catastrophe that was sure to come. For there was no doubt that something terrible was in the making. But Ward had abdicated, rushed off screaming that this was Bennion's pigeon now.

It was good to get clean again. Bennion lay on a cot, resting. Now that he had unguents on his burns, he began to realize how great the strain had been. Shortly he would go back into the plant. Indicators on the wall showed that some radiation was leaking through the hundred foot barrier and was mounting in intensity all the time. When Bennion went in again, his task would be far more dangerous.

At length an engineer came. Ward, he said, had left the plant.

"What is the situation?" asked Bennion bluntly.

"Bad," said the fellow, hopelessly. "The cranemen went out like lights. Nobody knows what happened. Some of the men in the booths are going to die. The rest will be cripples or idiots. The men want to run away, but the boss won't let them."

"Ward went away, didn't he?" asked Bennion with scorn.

"He said he thought it best to report the matter to the home office."

"Home office, eh?" growled Bennion, his suspicions fully confirmed. "That couldn't be General Atomics in New York by any chance?"

The engineer shrugged.

"At any rate, when he left he said that if you could think of anything to do, we were to give you all the help you needed."

"Thanks," said Bennion dryly. "I'm in charge of the plant and a prisoner in it at the same time, huh?"

"Well," said the engineer, doubtfully, "you are getting off easy at that. According to Ward the whole blow-up was your fault. He said you got excited and pulled the wrong switch. He says what he intends to do about you will all depend on how you pull us out of the mess. You can't laugh off twenty or thirty corpses, you know."

"No, you can't," said Bennion thoughtfully, thinking of the three or four billion prospective dead. If that gleaming, growing spherelet inside was really out of control, it might mean the doom of the race—perhaps even the world.

"All right," he added, rising from the cot. "Bring me the plans of this laboratory at once so I will know how to get around. Then I'm going to have another look."

This time he dressed with greater care than ever, taking especial precautions with the adjustment of his hood and the taping of his face. He found an extra heavy suit of outer armor and put that on. Then he walked boldly along the corridor formerly taken by Hallam. Beyond the booth entrance there was a circular staircase. Bennion walked down to the main floor.

Here Bennion could see the extent of the wreckage. The great machine had melted completely away, and left the abandoned magnets and ladle dangling foolishly far overhead. Where it formerly stood there was now a yawning crater full of bubbling, incandescent metal where the dazzling object continued to dance. And to grow. Now it was the size of an orange, and emitting a fierce radiance that meant certain death to anyone less well shielded than Bennion. In the far corners lay the bodies of several men.

BENNION stood on the edge of the crater gazing down at the shining thing through two inches of helmet lead. Yet it was almost unbearable to look at. Yes, it was a fire of a sort, and its fuel was the metal it bathed in. Bennion could see it swirling around the fierce sphere and being sucked into it. The level of the molten mass was sinking. He wondered whether the object had a special affinity for metal.

He picked up a heavy sledge and chipped out a hunk of the concrete floor. He tossed the piece into the cauldron, and watched the currents take it to the center in a series of tightening spirals. But the fiery mass seemed to reject it. The bit of concrete was not consumed.

Perhaps if the fiery thing could be fished out and placed on the bare floor, it might eventually burn out.

Bennion searched the tool rooms and found what he wanted, a pair of long-handled tongs of thermadont, an alloy with the highest melting point known.

Then he set himself and fished for the fiery object. He caught it finally, in the jaws of his tool, and tried to drag it to him. Then he got the surprise of his life. It came, but with ponderous sluggishness. At length he pulled it near his side of the pool, and prepared to haul it out.

Strain as he might, and he was a powerful man, he could not budge it. He tried again, until he felt his veins and muscles would burst. The result was the same. And the answer was all too clear. The thing was incredibly heavy!

The tongs were beginning to melt. Bennion retrieved what was left of them, and sat down to pant. He glared down, more baffled than ever. Yet what he had just discovered was not unreasonable. If the fireball was feeding on the hyperspiro and incorporating its substance into itself, it must weigh nearly as much. Some of the great machine was still undigested, and a certain amount had been thrown off in the feverish radiation. But he knew the stark truth then. He simply could not lift those hundreds of tons with his own unaided muscles.

He thought of the cranes, and looked upward. They still stood with magnets and ladle dangling. But there was no longer any juice in the building, and the crane operators had all died. He must get power and men to help him.

Bennion arose and gave a final glance at the fiery ball below. He saw his chunk of concrete. Half of it had been eaten away. Yet it was more resistant than metal. Perhaps there would be other substances even more so.

"I've simply got to fish that incandescent baby out and isolate it," said Bennion, and then made for the stairway.

Outside he found a changed situation. The dressing room attendants must have fled. Bennion slipped off his clothes and did the necessary things to alleviate his minor burns, then put on a suit of light armor and descended the stairs. From this high vantage point he could see the buildings between the barrier wall and the outer gate. The surviving employees of the plant were gathered there in anxious groups. Along the fence a cordon of guards was strung out. Beyond it a small crowd of townspeople—all men. Their leader was talking with the captain of the guard. That man wore the star of a peace officer. He probably was the sheriff from Foxboro.

"This is worse," thought Bennion. "Once the public starts to interfere we are sunk."

CHAPTER VI

The Net Tightens

REALIZATION that it was morning came to Bennion like a blow. The time had passed swiftly. The first breakdown, his long rest, and second visit had consumed the night.

He passed through the barrier wall but could not find the young engineer he had spoken to before. Most of the silent, anxious employees drew away at his approach. Blank despair was on all their faces. At length he found a man who seemed in charge. It was Hartley, a decent chap who had charge of one of the generators. Hartley had just come up from the gate where there was still a great hubbub going on.

"Oh, hello," Hartley said. "I'm glad to see you got out alive. The captain will be glad to see you. Maybe if you show yourself at the gate you can help calm that mob outside. Listen to 'em yell!"

"What's the row?"

"One of the guards on the fence skipped out. You can't blame him much. Anyway, he ran down the hill and shot off his mouth in town. He must have spilled all he knew, for they're sure buzzing."

"That's bad," muttered Bennion. The situation called for cool heads and clear

:hinking. "What are they saying?"

"Plenty. There are ambulances and nearses out there, and police cars. The sheriff and the county health officer and :he coroner want to get in and find out now many are dead and injured and how :hey got that way. The captain won't let 'em. They're threatening to use force. The mayor is yelping for the militia. But Ward hasn't come back yet and the captain's sitting tight. Some:hing ought to break pretty soon. Look, here is something a newspaper reporter handed through the fence to show us our secret wasn't so secret."

Bennion took the clipping and read it. It was from that morning's edition of a large New York newspaper.

Leakage of the news of a serious explosion and fire at the Ward Plant near Foxboro threw that town into a furore last night. Little is known as to the extent of the damage or the number of lives lost, since the plant operates under a special charter and is outside the jurisdiction of local authorities who have been denied entrance. But in view of the gravity with which the situation is viewed both in Washington and New York it is feared that it may be disaster of major proportions. Some estimates give the number of dead or badly injured at fifty, and the property loss is expected to run into millions.

It has been learned that the Ward plant is a subsidiary of General Atomics, but the officials of that company refused to be interviewed. Instead they handed out the following prepared statement:

"Late yesterday, during the course of a routine manufacturing operation an independent engineer who was being shown through the plant became excited and knocked open a nearby switch. This rash action caused a battery of exciters to blow up, and in the subsequent fire several men were killed and a number injured. Prompt action was taken at once to isolate the fire, and the injured men were evacuated.

"In proper time the company will take appropriate criminal and civil action against the responsible person, but at present it is more concerned with getting the plant back into operation. Mr. Elihu Ward, its superintendent, is now conferring with the home office on extensive repairs and alterations. He is not expected to return to Foxboro for several weeks. During that time the plant will remain in an inoperative status."

"I'll say it is inoperative," growled Bennion, and read on.

When questioned as to the wave of other atomic fires that are said to have occurred throughout the country, Mr. Farquhar, spokesman for GA, dismissed the stories as unfounded rumors. He said that a board of the company's best engineers would leave shortly for an inspection of the Ward plant, and that later their findings would be made public. Mr. Farquhar further declared that there was absolutely no cause for alarm.

"The term atomic fire is misleading," he said. "There is no such thing. It is the invention of writers of thrilling fantasy. Fires occur in all industries, and that of atomics is particularly hazardous. This is just another one. It is safe inside concrete walls a hundred feet in thickness. Since the current is shut off it will go out of itself in a few days."

BENNION frowned. "Nuts," he observed. Hartley grinned.

It was announced in Washington, however, that Senator Harold MacChaney was ready to go to Foxboro along with other members of the Committee on Atomic Control. Dr. Isherwood Tutweiler, Director of the Bureau of Electronics, and Elmer Dillwood Futtingham, the noted writer on the subject, were prepared to go along as advisers in the event a governmental investigation seemed to be in order.

"Sweet, huh?" asked Hartley.

"Lovely," replied Bennion bitterly. "A commission of crooks to lay on the whitewash, and a committee of stuffed shirts to gum up the game. If we haven't got a national calamity already, we'll have one when Dopey Tutweiler and the senators take charge."

Bennion spat disgustedly.

"That's not my funeral. Not yet. My job is to get a stranglehold on that fireball. I need help. First, tell me what the hyperspiro stood on."

"The substructure is a heavy cribbing of steel columns, over battery rooms, cooling system pipes, pump rooms, transformer banks and a lot of other auxiliaries. It goes seventy feet down to bedrock."

Bennion groaned. That made the need for haste imperative. He had hoped the object might exhaust the supply of metal about it and come to the more resistant concrete. Then it could not grow so fast. That would give Bennion time to study it.

"Listen, Hartley," Bennion's tone was urgent, "we've got to get that baby out now! I'm beginning to get a line on it. It isn't a raging atomic fire, but something a whole lot worse. That dazzling lump is a greedy, hungry thing. It feeds

on whatever is nearest to it, tossing the rest away as fierce radiation. Maybe there is something it cannot touch. If there is such a substance, we might be able to bury it in the stuff."

"What would it do then? Die out of its own accord?"

"Who knows?" Bennion shrugged. "More likely it would start to disintegrate. How fast that would be is anybody's guess. It might explode and take this end of the state with it. But it is a cinch that the smaller it is the less damage it will do. We've got to keep it from getting bigger. If we fail it may sink down into the mountain where nobody can get at it—maybe clear to the center of the earth. If it does that this planet may turn into a blue star."

"Yes, yes," agreed Hartley frowning, "it is easy to say we've got to get it out. But how? Nobody can live in that lab now. How you do it is a mystery. I'll help you all I can, but—"

"Here is how you can help," said Bennion. "I want the wiring to the cranes put in order, and juice sent up to the them. That can be done without going inside the nine-foot inner wall. If your men wear heavy armor and don't stay more than an hour they will be safe enough. I'll handle the inside stuff. But I've got to have a crane to work with, and a man or two to run it."

Hartley shook his head. "The crane circuits were not burned out. All I need to do is throw a switch. But there aren't any cranemen left. They all died."

"Get me two good men and I'll teach 'em," said Bennion grimly.

"I'll try," said Hartley, hopelessly, "but the men are in a blue funk. They would run away if it wasn't for the guards."

"Try," said Bennion.

HARTLEY was right. Not a man inside the plant would volunteer. The engineer brought the word back to Bennion. Whatever was to be done Bennion would have to do it singlehanded.

Bennion looked up from the blueprints about the capacities of the cranes and their equipment. With one resolute helper he could do the trick. Without an assistant nothing could be done It was no use to ask Hartley to come Hartley must stay in the generator room providing the power.

Bennion said nothing. Pawing the air and cursing would accomplish nothing. He slid off the stool and paced the floor. He simply must have a helper Where was such a one to be obtained?

Bennion knew that he had been overoptimistic when he said it would be safe for a man to operate a crane for short periods. Only one clad in a suit of Anrad could be considered reasonably safe. Even Anrad might not avail against that dazzling object. And there was no other Anrad suit but one—one made especially to fit an individual, Kitty Pennell.

Kitty Pennell!

Bennion knit his brows, fighting a tumult of conflicting desires and fears. Dared he induce Kitty to come to this dreadful place? Why should he allow her to run such a horrible risk?

Yet he needed her. She had been his assistant for a long time. They worked together as a perfect team. Each contributed what the other lacked. He was analytically minded, her methods were intuitional. Kitty was his inspiration, while he acted as a brake on her exuberant nature. Moreover she knew atomics as few men did, and on top of that, possessed the only other shield in existence potent against the deadly radiation of the ball of fire.

It was a hard decision to make. He thought of Ward and Farquhar and their cheap, miserable plottings. Putting the fire out was only a preliminary job. After that Bennion saw himself entangled in a mesh of conspiracy. Should he drag Kitty into the same net? The answer was no. Yet right or wrong he had to have her. What were he and she as weighed against the existence of the entire race?

His jaw was set in grim lines as he wrote out the terse message, fully understandable to only him and her.

COME AT ONCE. FLY. BRING EMERGENCY KIT 43B. VITAL. STEVE.

She would come, he knew. For it told

her that atoms were running wild and that cataclysmic happenings were in the offing.

"Get this off at once," he said crisply, handing the telegram to Hartley, who had come by.

"Not a chance. Not without Ward's approval."

"Then ring him up and tell him. I get my assistant or I quit. The rest is up to Ward."

Hartley took it dubiously and went off in search of the captain of the guard. He came back with a look of astonishment on his face.

"He okayed it," said Hartley. "He told me to have the big car waiting at the airport for her."

BENNION grunted. Then he looked anxiously at the clock and sat down to endure the several hours that would pass before she could arrive. To ease the tension he figured furiously, drew curves and wrote out complicated formulas.

By the time the messenger came from the gate to tell him that Kitty had landed and was on the way up to the plant, he had completed his preliminary computations as to what the fiery enigma might be.

He hurried to the gate just as the heavy car rolled through and came to a stop.

An instant later Kitty Pennell leaped out. Bennion's arms had hardly enfolded her when another figure stepped out of the car.

He was a large man and carried a brief case. By now he was an altogether too familiar figure.

Bennion whirled and glared at him.

"A touching reunion, isn't it?" said Farquhar, with an oily smile. "The last time we had quite a little misunderstanding."

"He who laughs last, Farquhar, laughs best," said Bennion coldly. Then he spoke to the girl. "We'll have to work fast. Hell is loose up there. Did you bring your Anrad?"

"I'm wearing it," she said, and hurried after him.

CHAPTER VII

Fresh Hazards

EVEN as they hurried along, Steve Bennion glanced apologetically at the girl.

"I hate myself for dragging you into this," he said.

She did not answer him until they entered the dressing room.

"I would have hated you if you hadn't," she replied. "What are we up against?"

"Concerning Farquhar," he said, "I don't know. Up here we have to deal with—well, call it inverse disintegration."

"That doesn't make sense."

"No," he said, "it doesn't. But we have to deal with it just the same. The fools tried to make Eka gold, number One-hundred-and-one in the atomic table. They didn't get it, but they got something up in the high numbers. Anything they could synthesize above uranium would probably behave the same way. You see, there is an excellent reason why uranium is the heaviest atom we know."

"And that is?"

"There are a handful of elements at the top of the table which are all radioactive, gradually breaking down into lower forms of atomic structure and giving off radiation. Atoms still heavier would behave in the same way, only at a greater rate and in a different direction. That is why I called it inverse disintegration. This thing we have to fight is a super-atom—an *integrating* atom. It doesn't break down. It builds up. At the expense of everything it touches."

"The answer is to keep anything from touching it."

"Yes," he said, with a wry smile, "it is as simple as that. Suspend it in mid-air by magnetic force, build a box around it and exhaust the air. Then leave it there, hanging from nothing in a vacuum. If it responded to magnets that would work. But we haven't the magnet. We have to think of something else."

"You poor boy," was all she said.

He helped her on with the cumbersome outer armor, and told her she wouldn't need to use the periscope eyes after she was in the presence of the thing. It was hard for her to believe that there were visible rays intense enough to penetrate lead, but his earnestness convinced her.

"Now come. I'm going to teach you to handle a crane."

If an uninformed outsider had watched those two massive leaden monsters stagger through the crooked passage he would never have guessed they were human beings. Bennion led her up the stairs, onto the crane platform. Then they paused, and both gave a gasp of astonishment.

The picture had changed, surprisingly. Where the hyperspiro had been was a lake of dancing fire. The molten remains of the huge cyclotron were burning in the same lazy way that alcohol burns. In the midst of the lake of fire still lay the great atom, dazzling with even greater brilliance. It was larger, too, as big as a basketball. Its weight must have been tremendous.

They climbed to the highest craneway where the big five-thousand-ton colossus lay. That crane was used to lift the cyclotron when repairs were needed on its underside. It was much too heavy for ordinary use. Its hooks were massive and the cables thick, running in heavy sheaves. Bennion took the controls and ran the crane to a spot already selected. Underneath was a giant ladle used for heavy mass metal production.

"You take over now," he said, climbing over the edge of the cab. "I'm going down on the big hook. I'll get hold of that ladle down there, and when it is on the main hook, send down that number two hook. Watch my signals."

A MOMENT later he was astride the hook and descending. He caught the bail of the giant ladle—had her take up the slack. Then he dropped to the floor and waited for the smaller hook to come down. That one he secured to a ring on the bottom of the ladle.

"Hoist away," he called through his transmitter, "evenly on both. Then run us down over the burning pool."

She handled the controls as if she were a veteran. The heavy ladle rose high enough to clear obstacles and began moving down the long hall. When it stopped Bennion was clinging to the outside of the bucket and poised above the pool of fire. Then he gave her crisp instructions. She hoisted the smaller hook until the ladle tilted sharply. Bennion crawled up to its highest point.

"Lower away now, and scoop that thing up. Take as little of the soup as you can. Never mind me. If you're quick I'll be all right."

She acknowledged, but with something like a sob. It looked terrible down there amongst those lurid flames.

The bucket lowered. Bennion could not feel the heat through his heavy armor but he was fearful that it might catch on fire. He sank into the flames, seeing nothing now except the dazzling brilliance of the thing he was after. He threw out a word now and then to guide Kitty's hand. Presently the lip of the bucket dipped into the flaming liquid and swept closer to the bobbing ball of fire. She let it sink a little deeper and inched it forward. The dancing ball of furious energy floated into the ladle.

"Straighten up and hoist away," shouted Bennion. "You've trapped it."

The straightening up was easy. The lesser cable went slack. The ladle lost its tilt and hung upright. In its bottom were several feet of flaming liquid metal, and swimming in it was the giant atom. She threw the controller over to full hoist, but nothing happened except a groan from the overloaded motors.

"It won't pull," she reported, her voice hard and brittle.

"Throw in the emergency," he directed. She did. The ladle began rising at a pitifully slow rate.

"Skip it," called Bennion. "If I hang here any longer I'll cook. Run me down to the end of the hall over concrete."

A minute later Kitty eased the bucket down to the pavement. Bennion looked

down into the interior. As he had expected, the molten metal was being rapidly lapped up. Shortly it would be all gone. Then they would see. How would the giant atom behave when it had only air and the refractory lining of the crucible to feed upon? Could it survive?

That would take a little time to discover. In the meanwhile it was best that he and Kitty get behind heavier armor. He asked her to send down another hook and, shortly after, joined her in the cab.

"It will be a half hour before there is anything worthwhile to see. The metal is nearly gone now and the thing is gnawing slowly at the ladle. We can come back."

There was a crash. The roof sagged, broke, and whole panels of it fell in. The roof, unlike the massive walls, was the ordinary factory roof. Slender steel trusses held up glazed skylights. It was the skylights that had collapsed.

"Good Heavens!" cried Kitty. "What has gone wrong now?"

Bennion looked down at the flaming pool. The flames were higher and more vigorous. That meant a more abundant supply of oxygen.

"I think," he said grimly, "our little friend now craves nitrogen. Take nitrogen from the air and there is not much left but inflammable oxygen. We had better get out of here and broadcast a warning. The interior of this place will burn out shortly, and then there will be an excess to feed into the general atmosphere. If the oxygen settles to the valleys the Foxboro fire department is going to have its work cut out."

THE girl became worried.

"Have we improved things any?" asked Kitty. "If it shows the same appetite for nitrogen that it has for metal, pound for pound, how long before all the air will be gone? We can't breathe pure oxygen. The race would burn itself up."

"Right," he said, and peered down at the monster atom. There was not another drop of molten metal left there. But the thing was growing still. Then he saw that it was only partly at the expense of the air. It was sinking through the bottom of the ladle. The lining, while not preferred fodder for the ravenous atom, was acceptable, it appeared.

Bennion's hand went to the control lever. He put a strain on the lift. The bucket now came up with ease. The giant atom had eaten a hole through its bottom! Bennion ran the crane and ruined bucket out of the way.

"We made a good try," he said, soberly, as he looked down at the fiery lump on the concrete floor, "but it still is not good enough."

They climbed out of the crane and made their way to the stairs.

"We have to do something about this air business, though," he added.

They went to a nearby storeroom, carried a big bag of barium sulfate to where the giant atom lay and dumped the contents on it. The heavy powder did not stop the fierce rays, but it did cut off its air supply.

"That's all just now," said Bennion, much discouraged. "Let's get out. We don't dare stay here any longer."

CHAPTER VIII

Defeat

FOR three days and nights Bennion and Kitty worked and rested in short spells. Hartley brought them sandwiches and news from the outside. Since no one else would come near them, he made a handy messenger. He reported anxiety throughout the nation was growing.

Some leaders feared panic might break out at any moment. Though the administration kept on issuing reassuring statements, members of the opposition were yelling for positive action. Fantastic and conflicting prophecies put out by rival scientific groups, added to the excitement. And the yellow section of the press did its utmost to fan the flames. Every silly rumor was aired under bold headlines.

Bennion ignored all this. He had troubles of his own. The burial of the

giant atom in barium sulfate had not proved to be the answer. The atom consumed that, too. The stuff only retarded its growth.

He rigged scaffolding above the cone of powder that hid the dazzling sphere, then with a long iron rod made a hole down to the atom. The ruddy cone then resembled a model of a volcano. Into that tiny crater Bennion dropped measured quantities of various substances. He and Kitty timed their rate of disappearance and entered the results in a book. They fed in many things, all sorts of compounds. Ultimately they almost exhausted the list of elements.

"Nothing works," said Bennion dejectedly. "Barium salts are the best, but they aren't good enough."

"Perhaps we ought to try gases," suggested Kitty.

"You may have something there, Kitty. First we had better see if there is a gas that is inert to it."

They spent some time prowling about the lab, looking for a suitable hood to use for their gas trials. Bennion took a middle-sized ladle, drilled two holes, screwed a pressure gauge into one and fitted a check-valve to the other, and then welded a carrying ring to the top. Next he fitted a heavy rubber gasket to the bottom.

"Sort of a cross between a diving bell and a candle snuffer," said Bennion as he viewed his handiwork. "Let's cover up our bright friend and see what happens."

By the time they finished bringing steel bottles of compressed gases, the giant atom had burned away all the barium sulfate. Now it was eating at the floor. Bennion hurriedly hooked up his first cylinder and let the oxygen discharge into the bell. He watched the gauge. It climbed. The gasket was holding. Now the atom was bathed in pure oxygen.

The gauge began to drop. He fed in more gas, but still the gauge kept dropping. They made notes. So many pounds of oxygen per minute. That was the rate of consumption. Oxygen was not the answer either.

Next they tried nitrogen. It was absorbed about three times faster. This would not do. If the atom was to be brought under control it must be surrounded by an inert substance.

They tried hydrogen and helium. These behaved like nitrogen. Argon was a trifle slower than oxygen, but in the end it went. The same was true of neon and krypton. Acetylene and ammonia went rapidly. There was no gas that was any good. They ruled out radon at the outset. It would break down into polonium and go the way of the other metals.

STEVE BENNION scanned the lists they had made.

"Looks like a choice between bad and worse," he remarked grimly. "Like putting out a fire with kerosene and naphtha."

They ate their lunch in moody silence. Hartley joined them. Bennion told him how things stood. Hartley looked troubled.

"I'm afraid that tears it," he said gloomily. "If you could have licked the thing it might have saved you. As it is, you're sunk."

"What do you mean?"

"I mean you are in bad. The Foxboro people are all worked up. They'd lynch you if they could."

"More of Farquhar's dirty work," remarked Bennion, indifferently. He had been so fully occupied with trying to smother the giant atom that he had given no thought to his own plight. He had not yet realized the extent of his difficulties. Hartley refrained from telling him he was being called a traitor, mass murderer, and worse things.

"That's not all," continued Hartley. "A lot of big bugs are on the way. A Congressional investigating committee and a commission of experts. Boswell, chief engineer for Atomics, is already here. He wants you to talk to him. He wants to build a bigger cyclotron and bombard it with electrons. He thinks it will start disintegrating and then the trouble will be over."

Bennion and Kitty Pennell looked at

him in amazement. Kitty giggled, Bennion gulped.

"Is it a gag?" he asked, incredulous. "Doesn't the fellow know anything about atoms? If it took a machine the size of this hyperspiro to knock ordinary atoms to smithereens, how big a gadget would he build to hammer at this one?"

"Not any sillier than most of the projects they are talking about," said Hartley. "You ought to see the mail and telegrams that are pouring in."

"Aw, skip it," said Bennion. "Come on, Kitty, let's go back and dope out what to try next."

They removed the snuffer from the blazing atom and resmothered it with barium sulfate. Then they stood looking at it and trying to make up their minds what new tack to try. Except by means of the phones, they could hear little through their helmets. Consequently a sudden inrush of men took Bennion and Kitty by surprise.

"Great Scott!" yelled Bennion, as he saw what was happening. "Get out of here, you fools. You'll all be dead in five minutes."

Incredible as it seemed, the Foxboro fire department, in full regalia, had taken over! Dressed only in their customary oilskins and fire helmets, a dozen of them swarmed into the room dragging fire hoses. The chief was bellowing orders through a speaking trumpet. They ignored Bennion. It was doubtful whether they recognized the twin lead monsters as human beings. Some one raised a hand and the water came on, tearing away the piled-up barium powder and slamming against the fiery atom itself.

Then the invisible, impalpable radiations began having effect. The men faltered, placed their hands across dazed eyes, staggered, and fell. Bennion and Kitty Pennell stood aghast. For by then every fireman was dead. Their optic nerves were blasted, their brains addled, their vital organs ripped through and through by hard radiations.

"We've got to stop this massacre," yelled Bennion, and sprang for the nearest doorway. Steam and purple gases were welling up from the spray of water on the atom. Bennion knew in the presence of water the giant atom emanated a heavy radioactive cloud. Should it flow down the hillsides, it would make a desert of the valleys.

"Back, back, you fools," he shouted to the firemen in the wing passages, guarding the long lines of hose. "Cut off that water."

"The chief said—" began one of the men.

"The chief is dead, fried to a crisp. So is everyone else who went in there. So will you be if you stay here. Get out quick."

ANGRILY Bennion strode to a wall phone where he plugged in an extension jack. He dialed the office.

"Tell whatever jackass is in charge out there," he shouted angrily, "that he is committing wholesale murder. Unarmored men can't live in this place. Half the firemen are dead already. Call the others off, and shut off that water!"

"I don't like your tone," came a petulant voice from the other end of the wire. "Are you Bennion? If so, report to me at once. We are tired of your bungling. The time has come for men of action to take charge."

Bennion groaned. If this was action, the less of it the better.

"Who are you?" he demanded.

"I have the honor to be Major Wilbur Wilberforce of the Foxboro Home Guard, temporarily in command of this emergency."

"Good gosh," said Bennion weakly, and hung up.

CHAPTER IX

Thrown to the Wolves

ON EMERGING from the lab, Bennion and Kitty Pennell found the dressing room filled with young soldiers. A lieutenant asked Bennion to accompany him at once to his commanding officer.

"Nonsense," said Bennion curtly, removing the heavy helmet. "I have to take a bath and put salve on my burns. I'll see your commander then, and not before. Better not hang around here either. There is more radiation leaking through that wall than out of any X-ray machine you ever saw."

The lieutenant bridled, but just then he saw the procession of burned firemen stumbling out of the entrance passage. The skin was peeling from their faces and hanging down in gory tatters. Their hair was gone. Most of them were nearly blind. These were the survivors. Half their number lay inside.

Bennion shucked off his lead, had a shower, and annointed himself. Then he made a tight package of his Anrad and took it to the door of Kitty Pennell's dressing room.

"Take care of this," he called. "I don't know what is coming up but you'd better keep my stuff until I come back."

She opened the door on a crack and took the Anrad suit in. She understood. This stupid interference made intelligent search for the solution of the problem impossible.

Kitty Pennell joined Bennion shortly and they made their way down the stairs and out of the laboratory. Here they paused to survey the remarkable scene laid out below them.

A long train of heavy army tanks was lumbering up the hill and through the gate. The tanks were plated on the outside with lead, prepared especially for this duty. Columns of infantry marched beside them. The soldiers were a curious sight, for they also were especially outfitted for the occasion. Their uniforms were covered with sheets of heavy lead foil, and the rifles they carried appeared curiously anachronistic when seen together with the glittering, flimsy mail. Below, among the buildings, other soldiers were swarming, while at the flagstaff streamed the Stars and Stripes. Over the administration building flew the flag of a major general.

"The regular army has come," said Bennion. "That lets me out of having to deal with the Wilberforce sap."

He could see no civilians below. The Home Guard also was gone. Ambulances were being loaded with the injured firemen and the now useless fire equipment was following.

"If it is the right kind of general," said Bennion, "I get a break. If he's not, I don't. Come on, Kit. Let's face the music."

The music was not melodious. It was no general that Bennion had to face but a formal Court of Inquiry, convened at the special order of the President. The composition of the court was not cheering. When Bennion was ushered in and took his seat in the witness chair he looked the members over carefully. Except for two army officers and the man from the Justice department—who were unknown quantities—they were as choice a collection of fatheads and stuffed shirts as could be found. Senator MacChaney, a blatant mountebank, presided. On either side of him sat Dr. Tutweiler and Elmer Dillwood Futtingham, self-styled experts on atomics.

Tutweiler was reputed to be a good appropriation getter for the Bureau of Electronics, but it was doubtful whether he had spent an hour in a laboratory in the last twenty years.

Futtingham's many books had done much to popularize—and also misinform—the public on what was what in atomics, but it was doubtful if he knew one end of a cyclo from the other. Then there was Crosby, chief of the legal department of General Atomics, who seemed to be directing the inquiry. Several others Bennion recognized as professors in jerkwater colleges. The outlook for an intelligent hearing was not bright.

IT STARTED out badly. There was a flurry of flashing as press cameramen took flashlights of Bennion. Reporters spread out their notebooks and poised their pencils ready to record the first words. Tutweiler started the ball rolling.

"Start at the beginning, Mr. Bennion," he said. "Tell us why you came here and why you did what you did."

"I recently suffered the loss of my own laboratory through foreclosure," answered Bennion. "I had to find a job. Ward offered to hire me and was showing me the plant when the accident occurred. Afterwards I hung on, doing what I could do to minimize the effects of the explosion. That is all."

Tutweiler waited until the clerks had scribbled that down.

"All right," he said, "but too sketchy. Describe how the accident occurred, what happened, and what state of affairs exists now."

Bennion told his story, omitting nothing of importance. He outlined his theories as to the nature of the giant atom and tried to demonstrate how inverse disintegration would work. All the time he talked he kept his eye on the F.B.I. man who seemed to be the only one at the table who was trying to follow his reasoning. At length he concluded.

There was a rustle of papers. Bennion saw that they were consulting the records of other testimony taken at previous sessions.

Bennion did not like it. Ward and Farquhar had already been heard, and he could imagine what a pack of lies they swore to.

"You say there is no atomic fire, only a giant growing atom," asked Futtingham with his exasperating superior smirk. "If it consumes everything it touches, gives off fierce heat, light and other radiation, what is that but fire?"

"I won't quibble over definitions," said Bennion. "Call it an atomic fire if it suits you better. It does not behave as we expected an atomic fire to behave, that's all. An atomic fire would be uncontrollable from the outset. I have kept this one under reasonable control for several days."

"You say you tried everything on it. Everything?"

"Everything in reason. I didn't try buttering it."

There was a rustle of agitated whispering. Crosby spoke out.

"Make a note of the flippant response."

"Jim, Jim—Be Careful—I'm Afraid of Rodney St. George—There's Something—"

INCOHERENTLY, BROKENLY, Pamela voiced her fears to Jim Downing, but Jim laughed at her. He didn't know the uncanny terror that went through Pamela at the sight of Rodney. . . .

A TERROR that was bred of amazing intuition—for Rodney St. George's strange experiments had given him powers beyond mortal ken!

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COMING NEXT ISSUE

A dozen pencils jotted that down.

"Did you say that the fire is inextinguishable?" asked the Senator.

"No. I said that so far I had found no way to extinguish it."

That went down in silence. Then they went back to the original accident.

"You were a stranger to the plant," asked an army colonel, "and confronted with equipment that I am told has no duplicate elsewhere. Why did you interfere with the deceased operator Carruthers when you couldn't have known what he was doing?"

Bennion turned the question over in his mind before answering it. It was packed with dynamite.

"I believe myself to be more familiar with that equipment than Ward or any of his men," he answered slowly. "I invented it."

Several present gasped at the effrontery of this explanation. Ward had sworn it was his own invention, and a secret one. But Crosby took it serenely.

"Perhaps Mr. Bennion would like to tell us how his invention came to be installed where it was. I am sure it will be illuminating."

Bennion shot him a look of contempt. He saw the bait and the hook, but he did not intend to sidestep. The world might as well know the truth.

"I invented the spiral cyclotron a number of years ago. Early tests revealed its dangerous weaknesses. Later the plans were stolen from my files. Since other of my inventions had been similarly stolen by General Atomics I presumed this one went the same way. Since it was valueless I didn't care. I also knew it was highly dangerous. I thought Atomics would discard it for the same reason."

A DEEP murmur ran through the court.

"Ah," breathed Crosby, relaxing and sitting back. "I've made my point, I think. But ask him one other question. Whom does he blame for the loss of his plant?"

Senator MacChaney looked at Bennion inquiringly.

"General Atomics," answered Bennion calmly. "They bought my mortgage from the bank and never gave me a chance to renew it. That is standard practice with them. That is the way they acquired most of their plants."

Crosby was positively gleeful.

"You see, gentlemen?" he said, addressing the members of the court. "Here you have a man with a persecution complex. He blames his own financial incompetence on my company. What does a man like that care whether he sets the world on fire if he can only carry out his petty little revenge for imaginary wrongs? He convicts himself with his own words."

"This is a court of inquiry, not a trial, Mr. Crosby," reminded the member from the Justice department. MacChaney rapped on the table.

"Any other questions?"

There were none.

"Very well. We adjourn. Ask the sheriff to step in."

"Now what?" thought Bennion. He did not wait long for the answer. The sheriff stepped up and extended a pair of handcuffs.

"What are these for?"

"You. You have been indicted in Foxboro for the murder of John Hallam, George Carruthers, and others. Come along. We're going downtown."

Bennion looked swiftly around the room. Most of the faces turned toward him were cold or savagely vindictive. Only the army colonel and the F.B.I. representative showed human understanding. General Atomics' lying propagandists had done their work well.

CHAPTER X

Jail

KITTY PENNELL sprang to her feet as she saw Bennion coming out, handcuffed to the sheriff. Her eyes were blazing. She started forward, but the army officers restrained her.

"Take it easy," one said. "You will be allowed to see him. Just now the court wants to hear your version of the catastrophe."

A file of soldiers interposed themselves before Bennion could make a move. Meantime the sheriff tightened his grip on his arm.

"Keep your shirt on, bud," growled the sheriff. "Starting something now won't buy you anything. "I'm taking you out of here for your own good. You don't know yet all that this bunch of snakes has cooked up for you. So play the game. It'll pay you in the long run."

By that time they were out of the anteroom. The door of an armored car was snatched open and Bennion pushed in. The sheriff and a soldier sat down beside him on the back seat. Two other soldiers with tommy-guns at ready climbed onto the running-board. A sergeant beside the driver fingered a light machine-gun.

The car rolled away. Bennion saw that it was preceded by three others, similarly ready for hostilities. Upon looking back he saw that they were followed by more guards. A half-dozen motorcycles with soldiers in each, hovered on the flanks. It was an imposing cavalcade.

"They must think I'm a hard guy to hold," remarked Bennion scornfully after tallying up his guards. Even the Dillingers and Capones never were so plentifully surrounded.

"You still don't get the idea," said the sheriff, grimly, "but you will."

On the road they passed numerous outposts and lines of sentries. It was not until they crossed a small bridge that marked the boundary between the Ward domain and the township of Foxboro that they had to halt. At that point Bennion began to understand. A double skirmish line of soldiers lay across the road and hastily erected pillboxes stood in the fields on either side. Ahead of the skirmish line stood the front ranks of an immense crowd of silent, sullen men—and determined looking women. Many carried shotguns or rifles. A few blue uniformed state troopers and deputies were trying to keep the mob in line.

"Gangway!" called an officer in the leading car. "We're coming through."

The answer was a hoarse and blood-curdling roar. The mob charged, screaming shrilly. It did not get far. The well trained soldiers knew what to do. Gas bombs were thrown. The mob leaders turned and tried to get away, but the unhurt rear ranks pressed them back. Then the armored cars charged—slowly but inexorably. The weeping, howling throng gave way despite themselves. Dismounted soldiers were flailing about them with clubbed rifles. A lane was quickly made. Bennion's car was tooled swiftly through it.

Beyond the mob were more escort cars. These formed a new cordon. The sheriff said nothing, but Bennion guessed why. The crowd behind was the advance reception committee. Uptown there was probably another.

Field telephones must have been at work, for when the reformed motorcade reached the center of the town it found the streets cleared. The little square before the jail was literally lined with soldiers holding back another mob that booed and hooted as Bennion was brought past. A few rowdies managed to hurl stones before the watchful patrols could slap them down.

"You'll be all right now," said the sheriff as the car drew up before the jail. He waved his hand at the sandbagged lower windows from which the muzzles of machine-guns protruded. It was a dazed Steve Bennion who entered the grim doorway of that jail. He knew what it was to have enemies—such as Farquhar and a few others—but it amazed him to encounter blind, unreasoning cruel hatred such as this. And from so many. He asked about the last.

"They've been pouring in here as fast as the trains and roads could bring 'em," answered the sheriff. "They are camped for miles around. You better be glad, mister, that you're in my hands."

ALL night the yelling and catcalling kept up and once there was a burst of firing. Bennion heard it dimly from

the hard bunk in his narrow cell. But after the first shock wore off he disregarded it. His thoughts kept turning to Kitty Pennell and what had happened to her, and again to the giant atom now burning itself unchecked into the hilltop.

He felt sure, however, his turn would come again. He was equally sure that, given time and help enough, he could solve the problems. So he threw off his worries and fell into a troubled sleep.

His breakfast was brought by a surly turnkey. Later the same man gave him a watery stew for lunch. It was not until mid-afternoon that Bennion had any news from the outside. The one who brought it was the prison doctor. He seated himself on a stool and began asking questions.

"I have some more patients," he began. "They are in a bad way. This stuff is new to me. What do you do for rayburns?"

"What do you do for an amputated foot?" asked Bennion, with a hard laugh. "You make yourself as comfortable as you can. The treatment is to avoid them in the first place by not staying exposed to them too long."

"Oh," said the doctor. "That explains how you and your helper stuck it out when everyone else was bowled over."

"Yes, We have worked with dangerous stuff for years. We know how to handle ourselves around it." Bennion chopped his words off short. What about his helper? He asked the doctor for news of Kitty Pennell.

"They spirited her away in a plane last night. Her father came for her. She will have to go in hiding for awhile. The mob is as hot after her as it is for you. That isn't what I came about. Now, as to these burned men—".

"Give 'em hypodermics and make it as easy as possible. They probably won't live the day through."

"I see," said the doctor, rising. "I guess you told the truth about the fire still raging. It's a humdinger. Here are some newspapers for you."

Bennion took the roll and waited until the door clanged shut behind the departing medico. Then he flipped off the rubber band and began scanning the headlines. It was incredible reading. They ran like this:

VENGEFUL MANIAC SETS WORLD AFIRE

GRUDGE-FIGHT SETS ATOMIC FIRE

BENNION'S MOLL DEFIES COURT

Helped Her Boy-Friend Fan Blaze But Won't Talk

Bennion gritted his teeth until they ached. His hands itched to wring the neck of the reporter that composed that gem. He went on.

END OF WORLD IN THREE MONTHS

So Says Famous German Atomicist

PROMPT EXECUTION SEEN FOR FIRE-FIEND

There were others, all on this same line. Now Bennion understood why the mob was so thirsty for his blood. He also understood fully, for the first time, the deep villainy of the men behind General Atomics. There was nothing personal—or at least was not in the beginning—in Farquhar's persecution or subsequent vindictiveness. Now there was something far more sinister behind it.

General Atomics had been playing with fire for a long time—and knew it. They were smart enough to realize sooner or later, there would be a slip. When that fatal day came they wanted a man on their payroll either to pull them out of the hole, or be the goat.

That was it. They were hopeful he would fall into the snare, go to work and iron out the bugs in the hyperspiro. He had to admit grimly that if Ward's approach had been more subtle he might have fallen for it. He never had the chance. The blowup took place at once. Ward promptly turned tail and ran, leaving him to hold the bag. All that followed was according to plan. One smear after another. Now it was all Bennion's fault. Atomics' skirts were

clean. They had passed the buck and made it stick.

"Ow-w," moaned Bennion, staring at the hard floorplate, "what a fool I've been not to see it before. Now where do I get off?"

CHAPTER XI

The Army Tries—and Misses

MONOTONOUSLY five days went by like the first. No one came to see about Bennion except a local lawyer, hoping to be chosen as defense counsel. Bennion did not like his looks and turned him away. Other than that visit he had none. Each afternoon the turnkey brought him fresh newspapers, but in them he found scant comfort. The vicious attacks on himself and Kitty Pennell were becoming more bitter. No news was released by the military as to how things were going inside the Ward plant.

Then Bennion discovered that the howlings of the mob were becoming less frequent and less loud. One day he woke up to the fact that there was silence outside. He missed the cadence of marching soldier feet as well. He asked his jailer about it.

"They have evacuated most of the town and the country for miles around," said the attendant. "They are setting up another defense line at a safer distance."

Bennion could think of no truly safe place within the orbit of Jupiter, but refrained from saying so. Until the appetite of the ravenous giant atom was checked, there was no assurance that its growth would be stopped short of the consumption of every other atom that went to make up the earth.

On the following morning a great bustling in the corridors told Bennion other inmates of the jail were being moved out of it. By the time his own cell was flung open he found himself to be the last. Sheriff, jailer, turnkeys and all had gone. There was only a captain and two privates.

"The army is in full charge now," said the captain, "which includes the custody of you. The general wants to see you. He would like your opinion about something."

"It is about time," thought Bennion.

They did not offer to put irons on him, so he walked along with the captain. Outside there was a jeep waiting. The town was a ghost town. Many windows were boarded up. Stores appeared emptied of their stocks. Not an inhabitant was left.

A string of ambulances rushed by, southbound.

"Casualties," explained the captain. "We had to evacuate the Ward plant altogether. Too many men burned up. Even the aviators on sky patrol got burns. They have lead-lined cockpits now."

"They have given up trying to control the—uh, giant atom altogether?" asked Bennion, somewhat startled. He did not expect it to grow as fast as that. It certainly would not if they had kept it buried in barium compounds.

"Not quite. But you'll see."

The jeep lurched around the corner and set out for the country. It was not the same road that Bennion followed to get to the Ward lab. This one went more to the northwest. It was also a hill road, winding and climbing steadily. They passed a number of sentries, a barbed-wire obstruction, and a little way beyond it, came to their destination.

It was a roomy pit, lined with thick slabs of lead and with a leaden parapet above which a number of periscopes were sticking. Lined up along the parapet, but unshielded by it were a number of radiation-recording devices. The general and his staff occupied the pit.

As he entered it Bennion glanced at the radiographs. They showed a tremendous volume of strange rays, not dissimilar to cosmic rays, in addition to the ones the giant atom formerly threw off. From that Bennion knew that the object had entered a new phase.

"Ah, Bennion," grunted the general, looking around, "I wanted you to see this. You started it. I'm finishing it.

Scientists say nothing can be done. They don't know the Army. Watch!"

An aide motioned to Bennion to take a periscope. Bennion did. He saw that the post he was in was located on top of another hill some two miles distant from the Ward lab. That appeared to be entirely deserted and he noticed the rest of the roof was caved in and gone. Where the outer buildings had been were now only gaunt, fire-blackened walls and heaps of ashes. Bennion did not need to be told what had happened to make the place untenable. The giant atom must have loosed clouds of heavy oxygen while exposed to air. In an atmosphere where a castoff cigarette butt would blaze like oil-soaked cotton it was small wonder the army had been burned out.

HE WAS puzzling over what it was the general wanted him to watch when he heard the drone of coming aircraft. He looked up and saw them. A large number of bombers was directly overhead going toward the ruined laboratory on the neighboring hill. They flew in a succession of V formations.

Around the hill a number of cannon had been set up.

"Surely, general, you aren't going to—" cried out Bennion, but the general cut him short.

"Silence!" the officer cried.

It was too late to protest. Immense eggs—at least five-ton bombs—were already falling from the leading V. Before they hit another flock was on its way down. Bennion held his breath wondering what would happen as the result, though on second thought he was doubtful if much of anything would happen. Then came the heavy concussions, geysers of fire and smoke and debris. Then more and more of them, and it was over. The planes had done their work and gone.

"That's the way to smash atoms," remarked an aide, gleefully. Bennion's answer was to point to the raymeters. They were clicking away as vigorously as ever—perhaps more so.

"That is to soften it up," said another. "Stick around and see what happens when the army decides really to get tough."

Meantime another group of planes flew by. They dropped no bombs, but in a moment a message was coming through on the radiophone.

"Observation squadron ten reporting. Damage to heavy walls slight. Brilliant object apparently unaffected, though has shifted position slightly."

The phone clicked off. The general frowned.

"What kind of thing is it that two hundred tons of TNT won't budge?" he demanded irritably.

"Anything that is as small as four or five feet in diameter and weighs five or ten thousand tons is pretty dense, general," replied Bennion dryly. "Its cohesive strength must be incalculable. I doubt if all the TNT on earth would have any appreciable effect."

"We'll see about that," snapped the general. Savage determination was written all over his face. He turned to his Chief of Staff.

"If the air is all clear now, shoot!"

The colonel's finger reached for a switch and heavy field guns began to thunder, hurling high exposive shells at the atom. The Ward plant was instantly blanketed in clouds of smoke. An aide spoke hurriedly to Bennion.

"We also drove a gallery deep underneath the thing. Trainloads of high explosives are packed in there. Look!"

That time the hill they stood on rocked like a small boat in a gale. For one dizzy instant Bennion thought a mistake had been made and a mine set off beneath their feet. Then he steadied and looked at the other hilltop. At the moment it was crowned with a dense cloud of dust interspersed with flying boulders and hunks of Ward's massive walls. He saw that there was no brilliant object in it—the giant atom was far too heavy to lift. It would roll into the hole blasted out and the ejected matter would fall back on top of it. It would be buried deep, too deep to get at again. The disintegration of the hill would then proceed unchecked.

The dust settled. There was no trace of the Ward structures. The entire contour of the hilltop was altered beyond recognition. Gone were the ray-filtering walls of lead and barium concrete. The radiation was now worse than ever, for though it came through hundreds of feet of earth and jumbled rock, there was no thick lead to soften its impact. A medical officer, wearing the insignia of the radiologist corps, called attention to the meters. The general scowled.

"Complete the evacuation according to plan. Report to Washington that all steps have been taken without avail. Mysterious fire beyond control. Declare a general emergency."

He stalked out of the pit and climbed into the big staff car. As an afterthought he shouted back:

"Put Bennion in a bomber and fly him to Washington. They will know what to do with him there."

The captain touched Bennion's sleeve.

"It's tough, fellow," he said, "but duty is duty."

"Yes," said Bennion dully. He had a duty to perform, too. He meant to do it, but this was not the time and place to begin. He walked to the jeep and took his seat.

THE captain strapped on his parachute. He did not offer Bennion one. He motioned for him to climb into the plane. Once inside he was told to go on aft into the bomb bay. The pilot and his assistant were already seated in the cockpit. The captain who had charge of him followed to the rear compartment. The motor roared to a higher pitch as it revved up. They were off, lifting easily into the air.

The captain, an infantry officer, was obviously interested in his new surroundings. He wandered about the bomb bay examining this gadget and that. Since his prisoner had no parachute, he evidently saw no reason to be extra vigilant.

"I hate to do this," thought Bennion. He braced himself, waiting for the split-second chance he would have the next time the captain brushed past him. The opportunity came within a minute. Bennion uncoiled his husky right and felt it land exactly where it was aimed, the point of the jaw. He caught the unconscious captain before he hit the deck. Then he eased him down.

It was but the work of a moment to appropriate the parachute and strap it on. Next Bennion opened the bomb doors and looked down on moving hilltops thousands of feet below.

He jumped, but delayed pulling the ripcord. It was still a long way down and there was lots of time. He glanced up at the fleet plane. It was going serenely on its way. Evidently he had not been missed. He must be out of sight before he opened up the telltale chute. But the ground was rising to meet him fast. He dared not wait longer. Bennion yanked the ring.

He had luck. He barely missed the edge of a thick grove of high trees, was dragged a number of yards across a field, then came to rest. He sat up and looked around.

CHAPTER XII

A Changed World

DESOLATION reigned. There was not a living soul to be found in the territory. A quarter of a mile away lay a deserted village. They must have taken their livestock with them, for Bennion saw neither cow nor dog nor chicken. He extricated himself from the parachute, burned it and buried its ashes. Then he cautiously approached the village.

It had been an artists' colony. Half the cottages were studios filled with a disordered array of overturned easels, scattered paint tubes, and abandoned sketches. At the far edge of the hamlet he came upon a barn which still bore a banner announcing it to be a summer theater. Upon inspection Bennion observed that it had been abandoned in great haste, the actors apparently leaving in the midst of their act, without taking time to change their costumes.

"What a break," he exclaimed, as he prowled through the dressing rooms. There were five suits of men's clothes to choose from, two of which fit. In the pockets of one he found cigarettes, matches, and a wallet containing enough money to last him for days. Best of all were the make-up kits, which he knew how to use, together with wigs and toupees, false mustaches and beards. He got busy at once.

At last Bennion backed away from the mirror well satisfied with his disguise. He wore a straggly, sandy beard, and a pair of glasses that appeared to be thick-lensed, but in reality were as easy to look through as ordinary plain glass. When he was finished he was the perfect counterfeit of an eccentric inventor.

He smiled at that. Already he had conceived a means to save the world from the menace that overhung it. Yet the idea was vague and nebulous.

Bennion took the road. He must get out of these hills before he was missed and multitudes of soldiers came beating the bush for him. He also wanted to find out Kitty Pennell's whereabouts and communicate with her if he could. Aside from his human craving to have her at his side again, he needed her to help him in his daring plan.

It was the next day, after he had trudged over thirty miles and camped for the night in a vacated farmhouse, before he came across the first man. The fellow was pulling out of a farmyard with a loaded truck. He offered a lift. Bennion thanked him and got in.

"I thought they was all out except me," said the man. "How come you didn't run with the rest?"

"I was out in the hills doing research work—" began Bennion. Surprisingly the man cut his engine and slammed on the brakes.

"Oh, you're one of those blasted scientist fellows that started all this trouble? Well, you can get out and walk."

Bennion laughed, sizing up his man.

"Wait a minute," he said. "I'm not that kind of a scientist. I'm an entomologist, a bug hunter—Japanese beetles and that sort of thing."

"Oh," said the man, mollified, and started up his truck again. It taught Bennion to beware. The state of the public mind made it open season for atomicists, he judged.

By the time they reached northern New Jersey they were passing numbers of houses still inhabited, though in many places people were preparing to move. Few soldiers were to be seen.

"I heard the army had this area shut off," remarked Bennion.

"They did for awhile, but not any more. You couldn't hire anybody to go up near Foxboro nowadays. They say the army engineers are driving a tunnel deep under Fox Mountain. Going to explode a bigger mine, somebody said."

Bennion considered that bit of news for awhile. In one way it was bad. It fitted his still foggy plans. He had to get at that big atom again if he was going to do anything with it. A horizontal tunnel would serve the purpose, provided the army did not explode another charge.

Near the Jersey end of the George Washington Bridge the man of the truck turned west. Bennion dropped off, saying he was going to New York.

THERE was no possibility of crossing the bridge. It couldn't even be approached. The torrent of frightened refugees struggling to get west was too strong to be breasted. They were the poor of the Bronx and nearby New England hunting safety elsewhere. Some were on foot, others in cars and trucks, but all carried what they could of their possessions. A weary policeman suggested to Bennion that he try the river. There were plenty of boats, he said.

Bennion thought that odd until he finished his climb down the Palisades and saw the explanation. People were coming over from Manhattan in all sorts of boats and rafts. Once on the western side they would abandon their means of transport and light out for the interior. Bennion selected a handy skiff, sat down, picked up the oars and began to row.

It took him some time to row across,

but longer to land. The Drive was lined with people clamoring for the boat. Men pushed through to the water's edge, dragging their women with them, shouting bids and waving handfuls of money. Bennion disliked cashing in on their frenzy, but he might need money and they thought they needed a boat. So, after rowing up and down awhile, he accepted an offer of five hundred dollars and handed over the skiff to its buyer.

New York had altered strangely. It was a sickening spectacle of what panic could do. Once inside the inevitable queues that Bennion later found were at every exit from the city, the scene changed. Physically, the town looked much the worse for wear. Many of the windows had been knocked out, doors battered in, and there were signs of looting everywhere.

He walked far enough to get a picture of the city as a whole. Then he boarded a subway train and went downtown to the financial district. It presented strange contrasts. Legitimate business was dying fast. Banks were closing. The stock market was hit hard. Long time bonds were not worth the paper they were printed on. Good stocks were to be had for a song.

It was the quack promotion racket that was booming. Fortunes were to be made overnight in backing fake rayburn ointments, or manufacturing cheap ray-resistant armor. The choicest racket was a new one to Bennion, and it was a startling find. "Arks" was the catchword of the day! Yes, arks—spaceships of impossible and fantastic design supposed to move the earth's population to other planets. Or at least remove those far-sighted enough to subscribe early to the stock.

He left the neighborhood still at a loss as to how to finance his project. He could not appeal to the government for money as he was being hunted on criminal charges. He could not go there. He took another subway uptown and got out in the Fifties.

Bennion had not proceeded more than a block or so when he had the queer sensation of being followed. He set several traps for his tail and eventually spotted him. There was something vaguely familiar about the man, but he could not place him. A General Atomics spy, or an FBI operator? Not that it made much difference. Being spotted by either would result the same way. Bennion hurriedly sought for some method to shake the shadow. Then he thought he had it.

CHAPTER XIII

A Weird Proposition

BENNION had seen a church across the street into which the crowd was thronging. It was a big, reputable midtown church of a staid denomination, but like others of the hectic times, carried a broad banner across its front, PREPARE FOR THE EVIL DAY THAT COMETH.

Bennion squirmed into the crowd, ducked behind a group of pillars, and then found himself in the vestibule, being pushed forward by the enthusiastic worshippers. A corps of ushers were handling the crowd. Before Bennion could protest he was hustled down the main aisle. The seat given him was directly in front of the pulpit and in the first row.

Presently the services began. Finally the pastor began his sermon. Bennion recognized him as an old pal and classmate, Buck Turner, once a fledgling atomic engineer who had dropped the course and gone into theology instead. Bennion relaxed. He still had confidence in his disguise, despite the possible recognition of the man who had followed him.

The sermon was probably typical of the times. It dwelt at length on the shortness and uncertainty of life. It wound up with an urgent exhortation to avoid the fleshpots and wastrel life of the panic-maddened city. The preacher said it would be more profitable to give over their wealth to the church.

The collection was huge. As the plate was passed Bennion saw that it was heaped with bills of high denomination, deeds to real property, and loose jewelry. When the ushers laid the plates before the altar, one whispered something to Turner. Turner nodded and whispered something back, at the same time glancing significantly down at Bennion. Bennion's skin began to crawl. Was he being betrayed?

As the organ pealed out the recessional march and the congregation stood up to leave, the same usher blocked Bennion's way.

"The Reverend Turner would like to see you in his study," he said, politely indicating the way. Bennion looked at the backs of the crowd jamming the entrance. There was no quick way out in that direction. Well, if it was a trap it was already sprung. Bennion went to the study.

"Come out from behind those phony whiskers, Steve, you big fraud," said Buck Turner the moment the door was closed on them. "I knew you the first time I looked at you." Then more soberly. "I heard you were in trouble. . . ."

"Who hasn't?" said Steve Bennion, bitterly. Buck didn't answer that one.

"My usher tells me," he said, "he noticed several plainclothesmen among the crowd in the vestibule. I presume you ducked in here to lose them. Well, Steve, I have no intention of letting them have you until I've heard your side of the story."

Bennion felt relieved. Buck hadn't changed despite his clerical garb. Bennion told his story from the beginning, briefly, but in enough detail to make his points.

"So I suspected," said Turner, thoughtfully, drumming his fingers on the desk. "Rumors reach me that the FBI is giving General Atomics a thorough going over. It is too bad that nobody in the government has the brains to turn you loose and let you work the thing out. It is the only chance we have. I'm not an electronics shark, but I learned enough to know that if there is an answer, you're the lad to find it."

Bennion flushed slightly. It was good to hear praise after such an avalanche of condemnation. Until this moment he had felt that all the world but Kitty Pennell was against him.

"Thanks," he said brightening. "You've asked a flock of questions. Now let me ask some. How come you're pushing this 'gimme' game just like the phony evangelists on the street corners? I thought you turned preacher because you wanted to preach—not for the dough that was in it."

Turner's face clouded. For a moment he looked embarrassed.

"It's true I'm reaching out for their money," he admitted. "I have a good reason. Did you have time to look around? All right. You know what is happening to the others. These would behave the same way if they didn't have faith. I am taking this money for safekeeping. It is a trust. If and when the day of security returns I intend to return every cent of it, for I do not believe the world is lost."

THE disguised inventor nodded.

"I do believe you," said Bennion, staring at the wall. Yes, old Buck Turner would be just that sort of a preacher. A squareshooter! It made Bennion hesitant about springing the fantastic proposition he had conceived.

"Well?" asked Turner impatiently. "What's on your mind?"

"I have half a hunch," said Bennion, picking his words, "that, given a few breaks, I may knock that dazzling giant atom into a cocked hat yet. It's half hunch, half hope."

"Steve Bennion's hunches are worth a lot any day," remarked Turner.

"This hunch calls for backing," said Bennion seriously. "I need money—scads of it, perhaps millions. More than that I need an organization above suspicion that I can manipulate without my identity being known."

"All that can be arranged," said Turner. "Let's have the details, please."

"It—it sounds preposterous," fumbled Bennion. When it came to putting his idea plainly, the words came hard.

"I am afraid I can't reveal the details. You'll have to take me on faith. I can't promise results. What I have in mind is such a gamble that it will even be necessary to fool your own people—"

"What in thunder are you driving at?"

"I want you to finance and be the spokesman for an outfit that is phony from the start. We can't do any of the things we promise to do, and we won't try. Have you heard of the Ark racket? Well, my idea is like that."

Turner sat up straighter and a shrewd hardness came into his face.

"Yes, I know the Ark set-up. It's crooked. Unless you can assure me that the vessel you have in mind will—"

"Fly? No, I cannot. The Ark idea is absolutely screwy. We can build ships of course, but there is no known fuel that will lift a ship free of the earth's gravitational attraction and carry it to any other planet. No one can know what conditions are in space—what kind and intensity of radiations or what temperatures will be like. To set off for Mars with an entire community aboard would be taking a worse chance than going over Niagara in a barrel. We all might be burned up or frozen within an hour. Lastly, we know nothing about living conditions on Mars or any other planet."

Bennion talked on vehemently. Turner listened gravely as he unfolded the main thread of his plan. It was audacious. It was skating on thin ice. Any weak link in the chain would nullify everything. Worst of all, the whole idea did not make sense.

"Stop!" said Turner, after ten minutes. "Let me get this straight. You are to pose as Professor Sven Lundstrom, an eccentric inventor. You've sold me on an Ark proposition. The ship is to be constructed by you. It is to be big enough to contain my entire congregation, plus their relatives, plus supplies for a trip to Mars and a surplus for a start on the new world. My people are to foot the bills, and also do labor on construction. Then, when it is finished, they are to be told it is a flop! Do you really expect me to lend my aid to a proposal like that?"

"I do," said Bennion earnestly. "What I am secretly shooting at is the development of a rocket fuel that will work. That fuel has to be atomic fire—real atomic fire, but under strict control. You know how the world feels today about atomic fire. It would be worth a man's life to mention experimenting with it. But we have to have it if the Arks are to work. Since I can't get money in a straightforward way, I'll pretend to build an Ark, though all the while I am skimping on construction and diverting money to develop the fuel. Can't you see?"

Turner shook his head. That was the screwy part of it. If you had a ship and no fuel for it, it was no good. What use, then, was such a fuel?

"Here is what I am driving at," Bennion went on, insistently, "if I can develop a good rocket fuel we won't need the ships!"

"Huh? Say that slow."

"That's right. With genuine atomic fire, but under control, I can knock the spots out of that baby blue star being generated in the bowels of Fox Mountain. Nobody will want to use their Arks then. They can be scrapped."

THE preacher stared at Bennion.

"But, Steve what if you fail?"

Bennion shrugged. "If I get my fuel, the earth is saved. If I don't get my fuel, we'll only be back where we started."

"I don't like the deception. It is hypocritical."

"Yes? What about your 'trust fund?' Are you strictly honest about that?"

Turner shook his head. Bennion had him there. But Bennion had more to say. "I'll go you one better. If I succeed, not one investor will lose a cent. That sounds wacky, but it's a promise."

Turner rose and paced his study. There was too much mystery to suit him. But he believed in Steve Bennion. Furthermore there was nothing to lose by trying, everything to gain by venturing. At last he stuck out his hand, and grinned.

"Let's go," he said.

"There is one more detail," added Bennion. "I must get word through underground to Kitty Pennell where I am. Can do?"

"Yep. But the first thing I am going to do is fix you up so nobody will know you—not even your Kitty."

"Please," pleaded Steve Bennion, "not that good!"

CHAPTER XIV

A Fresh Start

YET a full month slid by before Bennion had anything tangible to show. In that period—with the assistance of several discreet members of Turner's flock—his new character as an eccentric Swedish scientist had been put across. At the same time Turner was busy whipping up the enthusiasm of his congregation for the new project. He used the same line that was in vogue elsewhere—picturing the coming earth doom as another deluge. It worked. Turner was swamped with contributions.

Meanwhile, Bennion had been in communication with Kitty Pennell. He sent her huge sums with which she and her father were to equip a secret laboratory and take up the work on the atomic fuel where he and Kitty had left off. In return she sent him the blueprints of their model ship that still reposed undiscovered in the old quarry. After thus dividing the task, each went to work in his own way.

Professor Lundstrom's New York office swarmed with structural draftsmen who worked night and day getting out the plans for the magnificent super Ark. They worked largely with pantographs, for Bennion was content with his earlier design, and saw no need of taking time out to design another. The hull and tubes of the larger ship were the same as those of the smaller model except that the dimensions were colossal. The control room was a replica of the earlier vessel. What changes were to be made would be in the subdivision of the main body of the ship. The ship was gigantic—much larger than the largest ocean liner afloat.

Bennion let the contracts early. As fast as tracings could be made, he sent the plans to the steel and fabricating companies so that production on the parts could start. At the same time he was buying equipment so that the Turner congregation, under his direction, could assemble the ship themselves. In a little while the office work was completed. A committee of the faithful came with Turner, thumbed through the plans and pronounced them good. One foundation stone had been laid.

Progress on another was reported. Kitty's letter carrying the good news came just as Bennion was preparing to close his office. She wrote:

> Dad and I have been getting very encouraging results. We are up to the last stage. We have developed a stable compound that will break down continuously at any rate desired, but it has the defect of requiring constant bombardment by a cyclotron. The cyclotron uses too much power, and is also cumbersome and heavy. The net power available is still not enough to lift the ship and motors.
>
> I have a hunch, and Dad's theories confirm it, that once we got out into space we could soften up the fuel by exposing it to concentrated cosmic rays. The catch in it is that we have to get outside the earth's atmosphere before we can utilize those. If we could only generate enough cosmic rays here at the surface to free the same energy, the rest would be easy. We could cut the size of the cyclo to a tenth.
>
> If we could do that, don't you think we could alter the *Katherine* to make room for a few more people? Dad of course would be one of them.

Bennion smiled gently at that last line. He had no intention whatever of converting the little Katherine into an Ark.

The good news lay in the first section of the letter. If it was cosmic rays she wanted, he knew where plenty of them were going to waste. Fox Mountain was exuding them at every pore. It would be an easy matter to test her hunch. He decided to take a day off and look over the ground. . . .

The back of the car contained tins of extra gasoline and cans of food. Buck

Turner and Bennion took turns at driving. They sped on until they came to the desolate town that had been Foxboro. Then Bennion veered to the right and made a circuit of the fatal mountain. The concrete road rose to cross a small divide, then gently descended a long, winding valley. When they arrived abreast of where Ward's laboratory had been, Bennion could see what was happening to the mountain.

IT HAD taken on the appearance of a volcanic cone. A vast number of cubic yards of rock must have been consumed by the blazing starlet. Bennion glanced at the raymeter he had brought along. The radiation was as fierce as ever.

He did not drive off, however, until he studied the abandoned military work. A branch road led off to the foot of Fox Mountain, and there it entered as a tunnel. Judging from the great mounds of excavated earth spilled out below its mouth, the army must have gone well inside before giving up their efforts. The heavy pavement and width of the tunnel indicated that they used the mightiest of excavating machinery.

Bennion let the car start down the hill. He kept one eye on the road, the other on the raymeter.

"This is a wonderful site for our Ark," he remarked to Turner. "No one will molest us here. As soon as we are a safe distance from the mountain we'll choose a likely spot. After that we can move your people out here and begin construction."

The grade flattened out and Bennion drove on at a faster rate. At length they came to a place where the road left the valley and climbed through a low notch to a town on the other side of the hills.

"Right here, I would say," pronounced Bennion, looking about him, "is the ideal place. We can occupy the village. There will already be water and other conveniences."

"Yes," agreed Turner. "This is a good place."

The next day he worked feverishly at a new set of plans. By nightfall the sketches were on the way. They contemplated a caravan of six trucks, each especially equipped and all heavily shielded with lead plates. The letter to Kitty Pennell that accompanied them, after telling of the existence of the tunnel, said:

> Transfer your lab and the proof equipment to trucks such as these, and come on to Foxboro. Bring your own staff with you, but you and the Doctor will have to do the heavy work. Let him have my Anrad—it will fit him, I'm sure. In that tunnel you will find all the cosmic rays you want, and then some. I'll attend to the rest of the things.

After that chore was done, Bennion and Turner undertook the transfer of the congregation to the site where the Ark was to be built. In addition they took along a number of skilled workers whom they had induced to go by the offer of fabulous wages. For the rest of the week the roads to the north rumbled with the wheels of the loaded trucks. Other trucks joined them carrying the frames and plates for the giant ship. The name picked for the new Ark was a symbolic one. It was to be christened *Star of Hope*.

Turner assumed the government of the village. Jobs were delegated, and certain trucks assigned to them. An ex-produce merchant from the city was given the task of keeping the community fed. A former contractor undertook to keep the ship parts flowing in. A hospital was set up, using the doctors and nurses of the church. A group of farmers and actors took over the entertainment field. Life in New Eden, as they renamed the village, became normal. It was an oasis in a mad world.

Bennion and Turner had more reasons than one for establishing the community as they did. The news from outside grew more disturbing every day. The first wild wave of panic had subsided, but its disastrous effects continued to grow and spread. The people fleeing from what they regarded as the dangerous zone infected others in remoter parts of the country. The lawlessness to be witnessed in New York were repeated elsewhere. The leaders

of the New Eden project formed a conspiracy to prevent still more disturbing news from reaching the ears of their charges. Many of the ill-conceived Arks had already hopped off. As Bennion had predicted, all of them were heart-rending failures.

SOME blew up in their cradles killing or maiming everyone in the vicinity. Others caught fire and turned into furnaces that consumed their pilots and passengers. Those that left the ground did so only to fall back from terrible heights, in one instance into the heart of a great western city.

There were other evil aspects of the Ark idea. Foreign countries too far away to be much concerned, were beginning to turn back the flood of immigrants. Where they were admitted freely, as in Mexico, it became impossible to feed them. Those who did not die of starvation pushed on to Central America only to find more miserable deaths in the insect-infested tropical jungles.

The times were chaotic. New Eden was a good place to be.

Bennion also discovered the animosity against him was dying down. In place of it a strong sentiment against General Atomics was growing. Parts of the court of inquiry's findings had been released, and what was said did the trust no good. For reasons of its own the Government had not seen fit yet to announce Bennion's escape. Bennion breathed a little easier. It would break his heart to be interrupted. Already the construction scaffolding for the *Star of Hope* was rising. Tomorrow Kitty and Dr. Pennell would arrive.

Buck Turner came into the shack from which he was supervising the ship's building.

"There is a man outside who claims to be a government inspector of Ark ships. He insists on looking over the plans and talking with you."

Bennion strode to the window and looked out. A motorcycle was parked in front. The man who came on it was the FBI member of the court of inquiry!

CHAPTER XV

Sparring for Time

QUICKLY the inspector went straight at the business in hand. For half an hour he scrutinized the blueprints and asked pointed questions. It was evident he knew his subject, for the questions went right to the heart of the weakest spots. Suddenly he wheeled from the table and confronted Bennion eye to eye.

"What makes you think this absurd design will work?" he snapped.

"I don't," said Bennion calmly. He realized that the man knew who he was. There was nothing to be gained by stalling.

"Why do you build it then?"

"To keep a lot of frenzied people employed and happy," said Bennion, indifferently. "They could do worse things with their time and money."

"Ah. On the other hand, Mister—er—Professor Lundstrom, couldn't you be doing better things?"

"It is not always permitted to do the best thing," answered Bennion, meeting the piercing gaze with an unfaltering eye.

The inspector jammed on his hat.

"I'll check you over again. Say, in about—?"

"Two or three months," supplied Bennion, smiling. "I'll be here all the time."

"Good," said the visitor. He went out, mounted his motorcycle and drove away.

When the government agent had left, Bennion went out and cranked his trusty car. A little later he stopped before the entrance of the Fox Mountain tunnel. At that point he put on one of the armored suits he had brought along. Then he switched on his headlights and drove in.

It was a deep tunnel, sloping upward at an easy grade into the middle of the base of the little mountain. At all places it was wide enough for two trucks to pass and there were other slightly larger turning spaces. A half mile in he

ras forced to turn around and come ack, for the radiation was too fierce to e endured unless encased in Anrad as ell. But he was jubilant over what he id manage to see.

He scouted the outside more particu-arly. There he found a large deserted armhouse with barns that would make n excellent headquarters for the trans-erred Pennell labs.

KITTY PENNELL was driving the leading truck. Bennion met them n the outskirts of Foxboro and guided he caravan to its new headquarters. Kitty was delighted with the reunion, he surroundings, and the work ahead, ut Bennion cut her joyful utterances hort.

"Save it," he said, "we're not out of he woods yet. Slip into your Anrad nd armor and I'll show you where to tart."

When both were ready, he selected ne of the shielded trucks and drove to he end of the tunnel. As he expected, ts terminus was directly under the giant tom. They could see its glow through he many feet of rock ceiling that still upported it. The half-finished explo-ion chamber was cluttered with exca-ating machinery the army left behind.

"This is your workshop. Above you s your source of cosmic rays. Go ahead vith your own show, but there is also omething I want you to do for me. Take X-ray pictures of that giant atom every lay at the same time—its own radiation gives light enough. Set up other cam-ras on the mountain side outside and get shots from those angles. By trian-gulation we can gauge its present di-meter, and by shooting it every day you an determine the rate it is eating its way downward. You don't want to be n here the day it comes through the roof."

They turned the truck around and went back to the farm. Bennion shed his Anrad and handed it to Dr. Pennell.

"I'll come over every night and look at your graphs," he promised. Then he gave Kitty a warm kiss and hurried back to the *Star of Hope*.

A long motorcade had just arrived, heavy drays laden with the bulky stern parts of the Ark. Cranes were already dropping down to lift the massive pieces off. By nightfall two of the giant tubes were in place. The next day the other four were set to and work was begun on tying them together with the heavy hoop that formed the base of the structure to rise above. Like the *Katherine*, Bennion was building it vertically, nose up. The solid parts—which gave and took the powerful thrust of the rockets—served as the best foundation. The forward frame and skin of the ship was light and thin until it tapered at the nose. There, surrounding the control cabin, it would have to be reinforced again to cope with air resistance and meteoric dust.

Day after day the structure rose. In the end it would stand higher than the now empty Empire State Building—a long, silvery cigarshaped vessel, somewhat more slender than the little *Katherine*. Week after week additional parts came—the huge cyclotron and the tanks for fuel. These were installed as promptly as they arrived.

The fuel problem still bothered him. Kitty Pennell and the good doctor were making progress, but the fuels they had produced so far were not as simple or efficient as desired. Unless it was improved, he would have to rip out the cyclo from the Ark and install a much larger one. That night he pored over the curves provided by the Pennells.

"Hmm," he murmured, studying the indicator cards. "Almost, but not quite. How many more tries do you estimate it will take?"

"How can we tell?" said Kitty. "You know as well as I do how unpredictable experimental work is. If you want to know, though, I can tell you the date we'll stop trying. That will be September second, between noon and three o'clock."

"The afternoon of September second, huh? Let's see the other graphs."

Dr. Pennell handed over the curves plotted from the X-ray data. They showed the downward progress of the

giant atom. All Bennion had to do was look at the scale and see how many feet and inches it sank every day. Every day it sank a little faster and farther. An acceleration curve showed that rate also. The prediction was an easy one. On September second, the giant atom would break through to the rock ceiling.

Bennion drew a pad toward him and did some fast figuring. At last he pushed the pad away.

"I've got to run down to New York for a few days. By the time I get back you have to have that fuel. No fooling. Try mixing common salt with it. That is cheap and plentiful."

He drove back to his own camp with curiously mixed feelings. What worried him was the shortness of the time left.

As long as the giant atom was there above them it was still accessible. Once it began its descent into the earth proper they stood a good chance of losing it forever.

He had to make haste.

At New Eden he explained to Turner that essential parts of the ship had been held up at the factory, and that he was going into town to investigate the delay. It might take a week or more. It also might take money.

How much was there left unexpended from the Ark fund?

"A little over six hundred thousand," said Turner, looking in the books.

"Better give me five hundred thousand of it. I don't like the looks of things at the mountain. We may have to pay through the nose to expedite what we need, and I want to have the money on me to do it with."

WHEN he shoved off for New York he had the check in his pocket. In the city he went to one manufacturer's office and paid for a strange bit of equipment to attach to the spaceship. Then he went down to Wall Street.

He found a broker that Dr. Pennell recommended.

"How's the market?" he asked.

"Have you a dime?" countered the broker. "If you have, you can buy all New York State lock, stock and barr with New Jersey thrown in for cur shaw. For a quart of good rye whisky can let you have ten thousand dollars Pennsylvania Railroad bonds. If you a trying to sell something, it is the oth way around."

Bennion laughed. The world was ce tainly topsy-turvy. He scanned the la quotations. The broker had not exa gerated much. He made out a list what he wanted.

The face value came to many million the broker figured.

"The heat must have got you, but he you go. The securities come to eight three thousand dollars, and adding con missions we get—"

Bennion handed over the money.

"Deliver the securities to the Reve end Tucker at this address. Get the to him by messenger on September firs Thanks. Goodbye."

The broker scratched his head pe plexedly as his unexpected custom walked out. It was the first time i months that a buyer had paid the aske price for anything he could not consum on the spot. What a lot of queer nut there are in the world, was the broker reflection.

Bennion acted even stranger tha that. He checked out of his hotel roo an hour later. There was a week whe the anxious Turner, who became ne vous at his prolonged absence, trie vainly to locate him.

Then he unexpectedly turned up o the job at New Eden, appearing seren and contented.

"It's terrible, I tell you. The peopl are getting worried," said Turner, u gently. "They are ready to put in th decks and partitions in the forward sec tion and none have come. We cannc find copies of the orders. They had t stop work the day after you left. I ar afraid some will crack up if the dela lasts much longer."

"It won't," assured Bennion. "A ship ment ought to reach here any hour. The there will be plenty to do."

With that he hopped into his car an drove up to the Pennell farm.

CHAPTER XVI

Eureka!

UPON seeing Bennion, Kitty Pennell was elated. She was in Bennion's arms and babbling happily before he got well out of the car. The old doctor stood smiling by.

"We've got it, Steve, we've got it!" she told him, jumping up and down. "Adding the salt did it. A few minutes' exposure to concentrated cosmic rays does the rest. It works beautifully."

She led him to the rear of the barn where the proving slide was set up. Lying horizontally on it was a small projectile—three pounds of solid steel, drilled in the base with a fine hole. Back of it rose a massive concrete block faced with sheet steel. A hundred yards away there was another such block. Alongside the projectile lay a small portable cyclo attached to the house by heavy copper cables.

Kitty opened a can of gray powder. She dampened the point of a fine needle and dipped it into the powder. A tiny grain of the powder stuck to the point. This she carefully inserted in the depth of the drilled hole.

"This stuff is highly radioactive since its exposure to the cosmic rays. One stiff jolt from the cyclo will start it to disintegrating at an almost instantaneous rate. Look!"

She slammed in the switch. The cyclo gave a faint hum. All stood well back.

Wham! Presto!

No human eye could follow what happened. It was over even as it began. There was a whiff of ozone in the air; a vague impression that an instant before there had been a flash of unendurable violet light. Their ears still ached with the last reverberations of the thunderbolt that was let loose. The projectile had vanished!

They walked over to the target where a clean round hole gaped in its armored face. Incandescent concrete glowed through the orifice. The hot metal around it graded from a blinding, sparkling white through bright orange to dull cherry red and finally black. Driblets of molten iron ran down the face of the plate.

"Great Scott!" yelled Bennion. "What an impact!"

"Yes, plenty of power there," said Dr. Pennell.

The fuel was powerful beyond Bennion's wildest dreams. The disintegration of a single grain had driven the small shell with irresistible fury. Its acceleration had been so swift that no one had seen it leave the cradle. Its impact on the target plate had been terrific. The force was too powerful for matter to withstand. The test projectile had not pierced the plate. It had vaporized it, and itself with it.

"It is too good," said Bennion, thoughtfully. "No living thing could endure accelerations of that order. We will have to tone it down. Have you tried mixing it with the earlier fuels?"

"Oh, yes. Look here."

Nearby was another rocket stand. This one held what must have been a shell for a sixteen-inch gun. Overhead was a high pole from which dangled the wreckage of two velocity screens. Pennell dragged the cyclo over.

"You needn't worry about this one coming down again," said the old scientist. "We tried out some little ones first, firing them through those screens. The time between the puncture of the first screen and the topmost one was recorded on an oscillograph that shows when the electric leads were broken. The velocities we get are around ten miles per second. Anything going up with that velocity won't ever come back. Remember, Steve, that anything which exceeds a speed of about seven miles per second will overcome gravitation."

He deposited the cyclo on the stand for it, adjusted its discharge nozzle to suit, then drew away.

"The fuel in this shell consists of one ounce of the old and five grains of the new as a booster. You'd better give it lots of room. The high ones flare a lot."

When the switch was thrown that time

they had a repetition of what happened before, though on a grander scale. This time the shell left the firing stand at a sufficiently low velocity to be seen for the first half second of its flight. There was the same ear-splitting crack of thunder, the same vision of an intense violet flash, and what appeared to be a slender column of bleaming steel reaching from the cradle to the zenith. And, as instantly, it disappeared. Overhead all that was left to be seen was a hair-like wisp of greenish smoke trailing from some immeasurable height. The rocket stand was no more. It had melted under the rocket's heel and now lay in a slowly cooling pool.

"Still too fast," commented Bennion, thinking of what it must feel like to travel at speeds where the outer layers of the shell were burned off by friction with the air. "You'll have to cut down the mix some more."

BUT they had it! The long-sought-after fuel that would drive ships across the universe at any speed man could endure, was theirs.

"That stuff would make wonderful ammunition for a war," spoke up a young fellow named Glover. He was one of the student helpers the Pennells had brought along to handle the extra trucks and part of the lab routine.

"We aren't thinking of war," said Bennion, shortly, giving the assistant a hard, appraising look. Until that moment he had taken it for granted that Dr. Pennell's assistants were trustworthy. Now a doubt arose. It was an old rule in laboratories where pure research was done that when an assistant began to think of his work in terms of military application it was time to look out.

"I beg your pardon, sir," said Glover, and went about disconnecting the cyclo. "It was just a thought."

"It's all right, Glover," said the old doctor. "I understand what you meant, but this is no time to talk of it."

After the talkative assistant went into the house, Kitty Pennell had a question to ask.

"Are you still planning to demolish the giant by playing a stream of this energy on it? Dad and I figured it yesterday and it looks dangerous."

"It's worse than dangerous, it's impossible," said Bennion. "I figured some myself yesterday. There is no doubt that those fierce violet rays would disrupt the giant atom—swiftly, if we used a heavy jet, eventually if we used a thinner one. I neglected to take into account the back thrust. The starlet is too heavy, its inertia is tremendous. We could build a gun and plant it in the tunnel and let it go at the atom when it falls through. But we'd have to brace it with a mountain range to keep its own kick from hurling it backward over the horizon. If we had thousands of men and the material to work with and the time, we might anchor the gun sufficiently. We haven't any of those things."

"That means," said Kitty, gravely, "that when the giant atom crashes down there will be nothing we can do after all? Then we had better go home and make our plans for taking off in the *Katherine*."

"That can wait," said Bennion, absently. "There is another stunt I want to try first."

"And that?"

"All the details are not worked out yet," he said, evasively. "You'll know in due time."

They turned toward the farmhouse lab. As they did, Bennion glimpsed a man walking rapidly away along the main road. As if he sensed he had been seen, the man ducked quickly into the brush beyond and vanished. He wore the same grayish dungarees that the laboratory assistants wore.

Bennion dashed into the lab and glanced quickly around. He was looking for Glover. He was there, bending over a test tube. Bennion counted the others. There were four present. There should have been a fifth. He called Kitty aside, who had just entered behind him.

"Who is missing?" he asked in a low voice. Kitty turned and looked the helpers over.

"Sid Ellington," she said. "He has

been acting ugly lately. He told my father he wasn't going to sit on a volcano much longer. It was all my father could do to keep him from quitting on the spot."

"I think he quit just now," said Bennion grimly. Who was Ellington? And who was Glover, really? He hoped fervently that the next time he had an impossible job to do it would not be complicated by interference and mystery.

"You had better keep a sharp lookout," he warned her. "Something is cooking for us again, and it is something none of us are going to like. What it is I don't know, but I have the same crawly feeling I had the day we drove from the quarry to our old plant. Meantime, I've got to run over to the ship. More stuff is coming in and I have to show the men what to do with it."

He packed several tins of the new atomic fuel, both the high-powered and the low, and stuck them into the back of his car. Then, after a wave of the hand, he drove off.

He drove fairly fast, for whoever had built the road down the valley must have expected fast drivers to use it. Every turn was steeply banked so that a slow driver had the feeling of slipping off the road sideways. As he ate up the few miles between him and New Eden he had little time to think of the events of the day.

ON THE credit side was a partial victory—now he had the precious fuel. On the red side of the ledger he had several dubious factors. The material for the *Star of Hope* was not arriving as fast as it should. And there were the enigmatic trio—the FBI man, and the two laboratory assistants. Behind all of these the sinister figure of Farquhar loomed. It was still a week until the dreaded second of September came around, ample time for anything to happen.

His spirits rose a few notches as he drew near the construction job, for he saw that more trucks had come and the men were busily unloading them. But the moment he entered his office he sensed new trouble. Buck Turner sat there with a dark scowl on his face. As soon as Bennion was inside and the door shut behind him, he flicked out a scrap of paper and handed it across without a word.

Bennion took it and read the scrawl. The first glance told him the letter was phony, for its lines sprawled irregularly across the page like the scribblings of a little child and the words were deliberately misspelled. An attempt at disguising the hand, obviously. Moreover, the note was signed with the poisonous name, "A Friend." Stripped of its camouflage, it read:

Dear Preacher Turner:
Here is something you ought to know. That man calling himself Prof. Lundstrom ain't Lundstrom but Bennion, the guy that set the Ward fire. Him and the dizzy jane that helped him on that job are fixing to cross you and your sucker gang. Watch out! What they call fuel is *dynamite*—it will blow your ship up. Gang up on him and don't let him come near your ship again. They've got a hideout up the valley from you. The gal's old man is helping out. He is a jerkwater college prof named Pennell.

"What does this mean?" asked Turner. "I found it stuck under my door this morning."

"I wish I knew," said Bennion, darkly. "Hop into my car and let's take a quick run back to Pennell's farm. I'm getting uneasier every minute."

CHAPTER XVII

The Affair at the Farmhouse

LIKE a flash Bennion jammed down the gas pedal when he saw that dark blue sedan parked before the door of the farmhouse lab. It was a car he knew too well. He had seen it before. It was Farquhar's. Bennion turned into the lane leading to the farmhouse, and he only needed the two off wheels for it. He slid to a screeching stop and was halfway up the steps when he checked his headlong charge. It was just soaking in that Farquhar had taken the

trouble to turn his car around so that it pointed outward, and he had also left the motor running.

"All set for a quick getaway, huh?" muttered Bennion.

He jerked out his jackknife and with two swift jabs punctured the rear tires. Then, while they were still whistling, he plunged into the house with Turner close at his heels.

The laboratory was at the back. Those in it either had not heard his approach or did not care. Bennion dashed on in. Then froze. There were two reasons. One was the tableau before him, the other the cold, harsh voice behind him. In one corner of the room three of the lab assistants stood, whitefaced, with their hands stretched toward the ceiling. The one called Glover had them covered with a sub-machine gun. A few yards away old Dr. Pennell sat half-fainting on a stool. He had a gash across his forehead. Kitty Pennell stood beside him with her arm around him for support, gazing with flaming eyes at Ellington, who in turn, had her covered. The voice from behind was that of Farquhar.

Bennion turned slowly with his hands raised after a crisp warning.

"Stand where you are. Hands up and turn around. You haven't a chance, Bennion."

It was Farquhar with a heavy automatic pistol. Ward was there, too, and his weapon was held on Turner.

"Get over there in front of me, padre," directed Farquhar, resuming his old oily smile. "I can carry double. Ward has his work to do."

Turner looked at the pistols, then moved over nearer to Bennion. Ward pocketed his and started his "work." He scurried about the lab, snatching up sheets of memoranda, formulas, and diagrams. He sniffed bottles, sampled other chemicals, and pocketed some of them. Then he opened drawers and found the coded notebooks. He took those too.

"Okay?" queried Farquhar. "Then scram. We'll mop up here after you've had a good start. We will make our getaway in one of the trucks and bring along the heavy stuff."

Ward ducked out of the room.

Bennion's long suffering patience snapped like an overloaded wire. He had tried to play the game, but this enemy always stacked the cards. It might be suicide. He did not care, if only he could do a little murder before the fatal bullet hit.

Without the slightest preliminary signal, without the flicker of an eye, he dived straight at Farquhar. The gun almost exploded in his face but his impetus and the quickly upthrust left arm knocked the gun upward and the shot went into the ceiling. His right arm hooked up and an iron fist landed an uppercut that jolted out a wounded grunt. In the next instant they were a tangled, writhing, slugging, gouging pair of bodies rolling about on the laboratory floor.

Bennion expected to hear the rattle of machine-gun fire in the room but all that his ears could bring him was the sounds of his own and his adversary's breathing. At last he managed to get a headlock on, and this in turn became a stranglehold. Bennion hung on until the other went limp. Then he stood up groggily.

His clothes were torn to shreds and he knew that blood was running down his face. He was unaware of it, for an astonishing state of affairs met his eyes. Glover still held the sub-machine gun, but now it was trained on Ellington, who had dropped his and was holding his own arms tremblingly aloft. Dr. Pennell had fainted dead away. He lay slumped on the floor with two of the assistants bending over him. No one else was in the room. Where was Kitty? And Turner?

Bennion picked up Farquhar's fallen gun and dashed from the room. He could get the explanations later concerning Glover's last about-face. Now he must find Kitty. He must prevent Ward from getting away with the secret of the new fuel.

HIS heart sank the moment he reached the front door. Kitty was

ot in sight, but speeding up the road
oward Foxboro was his own car, driven
y Ward. He was already out of pistol
ange. There was no vehicle for a chase.
)ne disaster was an accomplished fact.
ennion ran around the side of the
ouse. There he had occasion to freeze
gain.

"Stand back, Steve!" came the warning
cream from Kitty. "Not another step."
Ie saw what she was doing—and nearly
hoked—with gratitude. She was
rouched behind the testing block,
quinting over it with her eyes as her
ands worried it this way and that.
'urner and the missing assistant stood
eside her, holding the portable cyclo
1 their arms. Then Bennion saw her
uick nod and saw Turner flip the
witch. He whirled in his tracks and
ot a glance up the road. Ward, in his
eeing car, was at the top of the divide,
eginning to go down on the other side.

A flash of violet, a crash of lightning.
'hen for one blinding instant it seemed
s if the world came to an end. Intol-
rable white light filled the valley from
'all to wall; wild, roaring winds
'hipped down, leveling trees before it.
'hey struck Bennion like something
)lid and sent him reeling against the
armhouse wall. In the background he
)uld hear the rending of timbers as the
arns went out of existence. A fright-
ıl force had been unleashed.

A dead quiet succeeded. Kitty Pen-
ell picked herself up from a flower bed
here she had been hurled. Turner was
:awling groggily in the grass. The lab
ssistant was out cold. Up the road,
here it went over the crest, there was
) car, no road, no vegetation, no any-
ıing.

"What went wrong, Steve?" Kitty
'as shivering, awed by the tremendous-
ess of her own performance. "I didn't
ut in any more than the usual charge."

"Nothing went wrong, darling," he
ıid, putting a steadying arm around
er. "You have an eye like an eagle's.
Vhat you didn't know was that I had
:veral cans of rocket fuel on the back
:at. Ward—"

He stopped short. She had slumped weakly into a faint. He laid her gently on the grass, only to find himself confronting the FBI man whom he had seen twice before. Where he had been during the excitement was a mystery.

"Some gun, Bennion," said the man. "You could go places with that."

"Yeah," said Bennion, tense and noncommittal.

"She needn't have gone so strong," continued the government agent, pointing at the prone Kitty. "I had men planted down by Foxboro to pick this gang up on the way out. But I guess it is just as well this way. Ward stole a car containing explosives, didn't he, and the stuff jarred off? Suppose we agree on that. It simplifies things. As to Farquhar and his stooge Ellington, my man Glover is tying them up now. Our books are closed on them. You can forget that crowd from now on. I've been working on the General Atomics case for the last five years. This is the final payoff."

"Say, who are you, anyway?" demanded Bennion. The other man flashed a badge. It was of gold, with diamond insets.

"MacFarland is as good a name as any. I am a Federal invesigator. I've learned most of what I want to know, but there are a few things I still need to be wised up on. Come clean. What are you up to?"

"Stick around a week and you'll find out," said Bennion doggedly. He was close to the point where he trusted nobody—far.

MacFarland fished a document out of his pocket. It was a special commission from the President. It authorized him to negotiate with Stephen Bennion and assist him in any way he could in the event he believed him worthy of assistance. Bennion glanced down at Kitty. She was reviving. She sat up, rubbed her eyes, and yawned.

"Let's take a little walk, Mr. MacFarland," suggested Steve. "I've done almost everything, but there are a couple of loose ends that bother me. It is outside interference I am worrying about."

"Why, sure," said MacFarland. "I feel

ripe for a little walk."

The work was going nicely when Bennion and Turner returned to the *Star of Hope*. Able workmen were installing the control chamber and strengthening the struts about it. But a puzzled foreman was regarding a pair of long steel members laid beside the road and the various accessories that accompanied them.

INCLUDED among the accessories was a husky atomic motor, a twin set of racks and pinions, and other queerly shaped pieces.

"Say, Professor," complained the foreman, "there ain't anything in the plans that calls for this stuff. Where does it go?"

"Sure it is in the plans. The stuff goes in the stern. The motor sits on the forty foot platform. The beams go up on either side through the two hatches we left."

"What are they for?" asked the man, still puzzled. So far as he could see, they were useless.

"To steady the ship when she takes off where there is no launching cradle. They are designed to drop down like legs."

"Oh. But they are too long to get in now. They ought to have been installed before we finished the hull plating."

"I couldn't help that," said Bennion, "we couldn't afford to wait for them. You'll have to dig out a pit underneath. That will give you headroom enough."

"Yes, sir," said the foreman, and blew his whistle.

Turner broke in.

"What else is to come?"

"Lots of things. Furnishings, bunks, galley fittings, food, and the fuel. Doc Pennell and Kitty are working on the last. It ought to be over any day. The rest will take time. Two or three weeks, I should say."

"How much time have we to spare?"

"Plenty," lied Bennion. He knew full well that the deadline was less than seven days away, but there was no use in revealing that. Even Buck Turner, if goaded enough, might turn panicky. As for the congregation, they were already showing signs of cracking nerve

"You are the boss, Steve," said Turne "I've gone along with you this far. might as well go all the way. We tru you, you know. At the same time—"

"I know," grinned Bennion. "Th shindig of this afternoon upset you. doesn't mean anything. We settled som old grudges there—that was all. It won make any difference. I will perform a I promised."

Turner looked doubtful.

"Do you remember what you promise Steve?" he asked, after a time.

"That I would save your congregatio if I could," said Bennion, but uncer tainly. He had been playing so man parts that for a moment he forgot.

"You said," continued Turner, re proachfully, "that the ship was a shan That it was designed in the beginnin to be a flop. I gathered that our activit was to be a front for something bigge I've shown my loyalty, Steve. What i up your sleeve? I've got to know be fore the showdown comes with my ow flock."

"Don't you worry, Buck," laughe Bennion. "I can't tell you yet, and i wouldn't do you any good to know. I'l give you a promise, though. Nobod will ever know how far you stuck you neck out, and if trouble comes it won be blamed on you. Satisfied?"

"No. Not by a darn sight," the pastc of the great midtown church exclaimec then turned abruptly and walked away

Bennion looked after him, slightl crestfallen until he remembered th promises of the man who styled himsel MacFarland. After that he smiled. I would all come out in the wash. Si more days of playing the game. An then—

CHAPTER XVIII

Darkest Hour

HURRYING matters was not easy Troubles multiplied. There wer delays due to the slow arrival of neede

parts, and there were delays caused by grumbling. On the third day there was something closely resembling a strike. The New Eden members quit in a body and marched to their cottages, leaving Bennion to carry on alone with those men he had hired from the outside. Later in the day he was given the explanation. Turner came to the office shack wearing a grave expression.

"My anonymous correspondent did quite a lot of letter writing before he left," said Turner. "The village is buzzing with rumors that you are Bennion—that you are not Bennion, but Lundstrom—that Lundstrom is a crook or insane. They have been told that the design of the ship is wrong, that no one knows how to fly it, and that the fuel is dangerous. I did my best, but their spirit is not the same. They have turned suspicious. They grilled me about the financial details and demanded an accounting. That last check I gave you I couldn't explain. I left them buzzing."

"Those letters were Ellington's work, I imagine," said Bennion. "They can't be undone. We will have to carry on in spite of them."

The work did go on, but haltingly, since some of the volunteer workers refused to come at all. Those that did went about the job in sullen silence. At that, the control cabin was installed and the ship's nose sealed. Structurally the vessel was completed. She lacked only the living accommodations. Trucks brought fuel every day. She was partially fuelled.

The most disturbing news came privately to Bennion in the form of a set of X-ray photos and a note from Dr. Pennell. Bennion stared at the damning pictures with a sinking heart. The giant atom had at last gone through the transformation the world had been dreading. It had suddenly stepped up its rate of growth. No one knew how much the acceleration would be accelerated. When it began doubling itself by the hour the end of the earth was at hand. Pennell's revised curve turned up sharply, indicating that the zero time would be some time early in the day on the first instead of mid-afternoon of the second. Bennion's carefully computed time schedule was wrecked.

He drove furiously to the laboratory to confirm the news at first hand and see what were the newest developments. Again he approached the farm building with growing dread, for he noticed that half the trucks were gone. They had been employed in bringing him fuel and there were none at that time at the ship nor had he passed any on the road. What could Pennell be doing with them?

The ultimate shock came when he ran into the laboratory. Neither Kitty nor the doctor were there. Two of the assistants were working over some X-ray plates, and their faces were ashy white. One came forward and offered a plate with shaking fingers.

"Taken ten minutes ago," he said. His eyes were full of terror.

Bennion needed but a glance to read the picture. The giant atom was raging now in earnest. It was fully twelve feet in diameter—a gain of a foot in half a day. The crash would come soon—perhaps tomorrow.

"Where is the Doctor and Miss Pennell?" asked Bennion sharply.

"They left," said the other assistant. "Went away early this morning in three trucks with Sammy and Ted for drivers. They went off Foxboro way, and they took a big load of fuel with them."

"What!" cried Bennion. It was unthinkable. Something uncanny lay at the roots of it. "Why?" he demanded fiercely. "What for? What happened?"

The two assistants exchanged uncertain glances. Then one spoke.

"We don't know. They wouldn't say. They had a big fight between them last night, and then they talked something over for hours. We couldn't understand what it was about. All we know is that they got out just after dawn."

"Miss Kitty left a note for you," volunteered the other, fumbling for it in a drawer. Bennion snatched at it, and read:

I am worried, Stevie, and I am going to do something about it. You are too darn noble,

old dear, and too darn cagey. While you are mooning over saving every Tom, Dick and Harry, I am eating my heart out about us. You are playing a lone hand, now it is my turn. By the time you see this I will be a long way away.

HE SCOWLED at the note, cursing softly under his breath. The crazy little idiot, he was calling her. For he knew what she was going to try to do. She was taking some of the new fuel to the old rock quarry and try out the model *Katherine*. His first impulse was to dash off to the city, grab a plane and head her off. Then he paused. He could not do that. The situation was too grave where he was. He had assumed duties he could not forsake at the last hour. Then again, she was in a far safer place than this valley. Perhaps it would be better to leave things as they were.

The fuel job was done. She was not needed any longer.

"Take this," he said, scribbling off a note and sealing it.

He handed it to one of the assistants, with instructions as to where it was to be delivered.

"Your work is finished and this place is too dangerous to stay in," said Bennion. "I'll send for the rest of the fuel. You fellows take the other trucks and get out. Goodbye and good luck."

The frightened tenseness of the two men relaxed. They knew something dreadful was in the air, though not exactly what.

"Thank you, sir," said the one who took the note. "We will be out of here in ten minutes."

The note was for MacFarland. Its cryptic wording would tell him what he needed to know.

Bennion's words were:

Climax coming any hour. Shove calendar up to now.

Bennion returned to the site of the *Star of Hope* with trepidation. The streak of luck that had been with him lately seemed to have left him. He feared that upon arrival at his base he might find himself face to face with a new trial. In that he was not wrong.

A thoroughly angry Buck Turner, accompanied by three of his most influential parishioners, was awaiting him in his office. On the table lay an open package, its wrappings speckled brightly with blobs of broken sealing wax. A bushel of green and red and gold engraved certificates spilled out upon the table.

Those were stocks and bonds by the millions, representing part ownership of a third of America's wealth. The broker had delivered too soon.

"What shabby trick is this?" asked Turner with blazing eyes. "Is it meant as cheap joke or as an insult? I asked money to back your experiments and ship, and you do this to me. You spend a quarter of a million dollars for this rubbish while our ship waits for vital parts. And you have the effrontery to have them bought for my account and sent to me. Are you trying deliberately to undermine me with my own congregation?"

Bennion was caught utterly aback. His face flushed furiously. When he tried to speak he found he couldn't bring out the words.

All he could manage was a weak defense.

"I won't try to explain it, Buck," he said. "Don't tear them up is all I ask. You'll understand why I did it in a day or so."

"We are fed up with that 'take it on faith' line, Lundstrom or Bennion, or whatever your name is," spoke up one of the parishioners, owner of one of New York's largest department stores. "You are fired, do you understand? We'll hire another engineer and finish what you began—if it can be finished, which we doubt. You had better get out quietly before the village gets wind of this last transaction."

"I won't do that," said Bennion, defiantly. "Your nerves are shot, and you've let them get you down. You don't know what you are asking. I am staying here through low and high water. That's all. Now I tell you to get out of my office!"

"We will be back shortly," cried another, "and with all New Eden at our backs. We'll see how big you talk then."

After they left, Bennion sat for a long time slumped deep in his chair. It hurt him deeply that Turner should have lost faith in him after trailing so long. He thought once of the bitter expression "like rats leaving a sinking ship," but he knew that that was not fair. All these who were leaving him had been patient and trusting and helpful. They could only stretch their faith so far. He could not honestly blame any of them.

BENNION got up and walked to the window. In the distance there was an increasing roar. Vehicles by the hundreds were coming, and he could hear the rumble of many men talking and giving orders.

What was it now? The mob from New Eden could hardly have been organized and back so soon.

Ten minutes later he knew the answer. The army was intervening again. A dozen armored cars, followed by a string of tanks, thundered past his shack. One sheered out and stopped. An army captain stepped in.

"How many men at work up in the ship?" he asked.

"None," said Bennion, eyeing the man. They have quit for the day. You will find everyone in this district over at New Eden, just beyond this ridge."

"They'll have to get out," said the officer, "and you too. This part of the state has to be evacuated at once. Colonel Flagg is in charge. It is a Presidential order. Pack up and get out."

He cast a searching look around and went out. Through the open door Bennion saw other soldiers searching the sheds and storehouses. They were making a clean sweep. Bennion looked at his watch and sighed. One hour! One hour of grace before his plans collapsed like a house of cards. He wondered about MacFarland, whether he would get the note in time and whether he would act effectively and promptly. MacFarland remained his last hope. The other bubbles had burst.

CHAPTER XIX

Taken for a Ride

COLONEL FLAGG was a tough old egg. He wouldn't budge. Out meant out. All of Bennion's protests were brushed away. When he reached the end of those the colonel lost patience. Two soldiers rushed Bennion and proceeded to hustle him into a car. It was then that MacFarland arrived to save the day.

He called the colonel aside and whispered a few words. The colonel nodded, then grumpily called off his dogs of war. A moment later the staff car whizzed away. That meant the last of the soldiery was gone. Bennion then saw that MacFarland had a number of men with him. Three were armed with cameras, two with portable microphones, and several others with notebooks. There were a couple of huskies along that Bennion took to be plainclothesmen, and, of course, the drivers of the two cars.

"I'll take over now," said MacFarland. He walked up to Bennion and began picking away the items of disguise that he was wearing in his false character of Professor Lundstrom. He flicked off the heavy blond eyebrows, snatched away the mustache. With a few other touches he completed the unmasking.

"All right, Bennion," said MacFarland, stepping back and checking his work. "If you'll wash your face we can proceed with the pictures."

"Pictures?" asked Bennion, aghast.

"Sure. We always take pictures. Hurry."

It was good to wash his face and have it feel natural again, but Bennion did not hurry. He was still stalling for time. Things were not working out quite as he planned them. MacFarland never had shown his full hand. Then came the business of being photographed, after which a movie camera was set up and the microphone.

"Have you any final statement you would like to make?" asked MacFarland.

"It will be released immediately to the public."

"Yes," said Bennion proudly. "It is this. From first to last I have done what I have done because I felt it my duty. I apologize for nothing. I shall continue in the same line to the last moment unless I am prevented by forces too great for me to control. That is all."

"Splendid," said MacFarland. "Okay, boys. Take it away. Burn up the road getting back, you haven't any time to lose."

The newspapermen jumped into their car and rushed off. Night was falling. If they drove fast they might still catch the morning editions. Bennion turned to MacFarland after he had sent his own men out to wait in the car. There were explanations due. MacFarland grinned and stuck out his hand.

"I did the best I could," he said. "I rang the army in as being the simplest way to get the New Eden villagers out of your way and in the clear. Now the army is in the clear with them. In a couple of minutes I'll be gone. When does the big pop-off start?"

Bennion shook his head.

"Any time from now on. An hour or so, maybe another day. The atom is pepping up fast. You had better not hang around. But what were the cameras for?"

"The press, man! This is the biggest show of the century! Right now there are fifty press planes soaring overhead waiting for the curtain to rise. I know you didn't order it. The big boss did. He thinks the people ought to be told the truth. It will be a proper sequel to the Farquhar revelations. We released the full story on that less than an hour ago. He broke down and told us the whole sordid business. The wires are already humming with it."

"That's good," said Bennion dully. He had almost forgotten about Farquhar, so much had been happening. Lately he had come to regard the fellow as no more than a minor nuisance, but it was just as well that he was behind the bars.

"Any last messages?" asked MacFarland, more soberly.

"No," said Bennion. "I have said al that is necessary, I think."

"No word for Miss Pennell?"

"She will understand," said Bennio shortly.

MacFarland gripped his hand.

"You're a brave man, Steven Bennior Good luck to you."

"Cut out the melodramatics, if yo don't mind," said Bennion. "I neve went out on a limb in my life unless thought the limb was reasonably strong I'm not starting now. Believe it or no I'm having the grandest time of all righ now. We will have a good laugh ove this yet. Wait."

"I still think you are a brave man, said the FBI operative.

"Hogwash!" And Steven Bennio meant it.

IT WAS pitch dark except for th mild moonshine from a quarterin moon inching toward the zenith. Ben nion turned out the lights in his offic shack and surveyed the towering mas of the *Star of Hope* that loomed abov him. It was an impressive scene and lonely one, for he knew that by then no a living thing was within a radius o miles.

He made his way to the dark shadov beneath the hull and walked betwee two of the giant tubes. Carefully avoid ing the deep hole that had been dug t permit the placing of the long struc tural members that were late in arriving he found the ladder that led up into th interior. He climbed it, found th switch that turned on the auxiliar lighting system, and went about the grir business of the night.

After he climbed two more ladders h came to the lower operating platform He checked over the raymeters. All wer dead except for the occasional tick as a outside cosmic ray trickled in throug the earth's atmosphere. He set one aux iliary cyclo into motion and brought i up to speed. Then he stripped an shifted into the Anrad suit, topping i with complete armor except for th heavy helmet. He tested various ma chines. All were ready. There wa

nothing left to do but sit down and wait. The next move belonged to the giant atom gnawing at the heart of Fox Mountain.

It was dull in there. Bennion adjusted the two-way periscope through which he could either scan the country roundabout or the ground immediately beneath him. All that was to be seen was the moonlit countryside. To while away the time he put on a pair of headphones and plugged in on the radio. He tuned in AWCS, the recently formed All World Broadcasting System. What he heard made him squirm.

"Folks, stand by your sets—the most momentous moment in human history may occur any second," a well modulated voice was saying. "Here we are, Bill Eddins of the AWCS news staff, and Ted Squivens and Bob Blaufield, ready to give you a minute by minute description of what the eruption of Fox Mountain will look like. We are in an army bomber, five miles up. The sky is full of planes of the press, army and navy. Don't go away. Dr. Schnitzleberg, the eminent atomic expert, is also with us. He says that his computations reveal that the explosion may occur at any time now."

Bennion snorted. He had never heard of Schnitzleberg. Whoever he was, he could not possibly know what was about to happen. Unless, of course, he had been tipped off by MacFarland. Worse was yet to come.

"Four miles away," continued the announcer, "all dark and deserted save for the one heroic figure huddled within it with his secret plans for saving our race, sits the man who may be destined to be the world's greatest hero. That man is Stephen Bennion, the maligned and misunderstood lone fighter of our day. You all heard earlier his noble words 'I have done what I have done because I felt it to be my duty. I shall continue in the same line to the last.'"

Bennion groaned audibly, plucked the earphones from his head and hurled them across the room.

"What a fool I made of myself," he cried. "Why did I say anything to that slimy MacFarland, the double-crosser. Oh, rats!"

Curiosity got the better of him. He salvaged the battered headpiece and put it on again. The voice still went on.

"Throughout the world solemn services are being held and prayers are going up that Bennion's unselfish sacrifice will avail—"

A violent vibration shook the ship, nearly tossing Bennion off his seat. The hull creaked and swayed and was filled with ominous rattlings. It was as if an earthquake was in progress. Then the ship steadied. Bennion took a firm grip on himself. This was it! The giant atom must have crashed through the ceiling of the tunnel and struck the heavily reinforced concrete floor. He corrected the adjustment of his headphone. Everything would depend on what followed.

"—we have just heard a dull boom even above the roar of our motor. A brilliant light is shining on the ridge east of Fox Mountain. It is like a searchlight beam, but it seems to be coming out of the side of the mountain . . . we hear a rumbling sound . . . it gets louder. The light gets brighter . . . ah-h-h—" the voice ceased for a moment. Then it resumed.

"Folks, we are now looking down at the most marvelous spectacle any of us ever beheld. A great globe of blue fire has erupted from the mountain side, deep down in the valley. It is moving ponderously down the road, and the road is cracking under it and giving way. It sounds like artillery fire. But the blue globe keeps going on, and there is a broad trail of fire behind it where the concrete of the road has melted into slag. The country is lighted up like noon. The trees and houses and shrubs are burning furiously. It is hell down there, folks, simply hell. We are glad we are thirty thousand feet above it. Even here we have to use black glasses—"

BENNION'S breath was coming in heaving gasps. He disregarded the radio for a second and swept his glance across the instrument board. The ray-

meters were showing a distinctly higher activity. He peered into the periscope. Outside it was like daylight. But all he saw was the familiar hills and nearby deserted houses. He listened in again. He had to know what the giant atom would do next. In theory he knew what it would do, but he was worried about the strength of the roadbed.

"The fiery object is rolling slowly down hill. It has come to the junction of the army's tunnel road and the highway between Foxboro and the town lately renamed New Eden. It is following the road, though it hesitates at the curves. But it has made them all so far—"

"Thank heavens those curves were heavily banked," thought Bennion as he listened.

"The flaming atom goes on down the valley," the radio voice was saying. "It is winding and twisting, but it sticks to its course. It is going faster now, and everything it approaches bursts into flame. We are wondering what will happen when the road turns upward. Hang on, folks, and we'll let you know."

Bennion ripped off the headphones and carefully locked his leaden helmet on. It did not matter any longer what the birdseye view was. The giant atom would soon be in his own lap. He jammed his eye against the periscope. The light was growing brighter. Its intensity was getting to be unbearable to unshielded vision. He left the periscope for an instant and started up another cyclo motor. Then he was back.

The dazzling giant atom rolled into full view. It was coming fast. Bennion snapped on the lead filters and resumed his vigil. What would it do next? He was reminded of the grim humor of the old wisecrack about engineers. "Engineers never guess," it ran, "they estimate." That was all he had done. So many miles downhill, bulding up velocity, then a sharp rise. His car had done it —made the downgrade and then topped the ridge and come to a stop. But the frictions involved were different. He had tried to allow for that, but he did not know how well.

The giant atom, blasting its fiery brilliance in every direction, rolled inexorably on. It came abreast the waiting *Star of Hope,* hit the curve, wavered, and then started climbing up to it. Bennion held his breath as he watched. Any second now would spell the difference between the hope of success and flat failure. The atom came on, slowing gradually. It was almost underneath the ship when it seemed to come to a full stop. But it was still moving ahead —a foot a minute. It rolled out of sight and underneath the giant hull.

Bennion switched the field of the periscopic sight. Now he was looking straight down. The atom hesitated on the brink of the hole beneath, devoured its lips, then tumbled into it with a thud that nearly wrecked the ship. Bennion's hand reached out for the control levers that he had cleverly located long before. The giant atom was within the grasp of the space ship. The question to be decided was the strength of that grasp.

The lower hatches rose on their hinges. The two giant beams that the colonists of New Eden had puzzled over slowly descended through the openings. At their lower ends they were fitted with grapnel like claws of special barium alloys. Bennion pushed other buttons. The claws closed after the manner of the maw of a steam shovel. The giant atom was within their grip. The real test was to come.

Bennion flung his hands to the other side of the switchboard and jabbed savagely at two buttons there. Machinery whined and groaned as the cyclos came up to full power. There was no result. The atom was much heavier than he had counted on. He threw in a fifty per cent overload—then a hundred, watching the gauges with an anxious eye. He cut in the last motor he had. It was now or never.

The monstrous tongs began to rise. It was slowly, to be sure, and with groaning protests, but the giant atom was being lifted into the tail of the *Star of Hope.* Bennion waited with an almost unbeating heart until the fiery ball was well up into the interior. Then he

slapped on the magnetic brakes. After that he threw a lever which opened a spherical container of gargantuan size. It was lined with many feet of barium concrete. Into that he eased the burden of the tongs. With another slash of the lever he clamped its jaws together and locked them. The giant atom was imprisoned on the *Star of Hope!*

WITH a clang Bennion closed his stern doors. Then he shut off the auxiliary cyclos. He stepped into the elevator and went skyward toward the nose. Hurdles one, two, and three had been jumped. The voracious atom had taken the road in preference to sinking deeper into the mountain. It had kept the road all the way to the ship, where it had fallen into the pit dug for it. It had been lifted inside. The rest depended on the *Star of Hope.*

He crawled through the door of the control room, and seated himself in the driving bucket. At that height he felt safe in loosening his helmet, for several decks of lead intervened between him and the deadly menace below. He replaced the headphones, then reached out for the main drive switch. The radio voice was still droning.

"Folks, this is the big moment—the pay-off. The bright object that was going to devour the world has disappeared beneath the ship *Star of Hope.* It was drawn up into it. It suddenly grew dimmer, though we can see it still as a dim glow. Oh, golly . . . something terrific is happening . . . the entire district is bathed in blinding fire . . . the space ship has exploded . . . no, NO . . . it is taking off. . . ."

Bennion heard no more. His hand had already closed the ultimate circuit. His internal organs cried out in tortured pain as the frightful acceleration flattened him against the back of his bucket seat.

He was smothering from the sheer inability of expanding his breast to take in another breath.

His circulation stopped. He saw fire, then blackness. After which he passed completely out.

CHAPTER XX

Star of Hope

INKY blackness endured for eons. Then it passed. With great effort Bennion opened his eyes. The control room was flooded with brilliant light. Looming big in the lefthand ports was the moon, scarcely twenty-five thousand miles away. Bennion feasted his sight on the sparkling surface, broken picturesquely by mighty mountain ranges and huge craters. Then he found himself craning his neck to follow the view, for the moon was rapidly drawing aft. The *Star of Hope* was well launched into space, was already beyond the orbit of the moon.

Bennion adjusted the feed flow to the flaring tubes. It was not enough to get clear of the moon. He must make certain that contact would not be made with any other body in the solar system. He threw the propelling blasts sufficiently out of balance to ensure the rocket ship's twisting upward, straightway out of the plane of the ecliptic. There was no more to do for the time being. Bennion walked to a port and gazed out at the multicolored stars that studded the heavens, now to be seen with magnificent clarity.

"Beautiful, isn't it, Steve?" said a soft voice behind him. Steve spun as if struck by a lash.

"You! Kitty! You shouldn't be here!"

"I *am* here. I couldn't let you do this thing alone. I—you—that is we—"

He dragged her to him in a grotesque embrace. Unhelmeted, but with bodies clad in heavy leaden suits, they must have appeared to an astonished man on the moon as a species of ungainly turtle, from some alien planet.

"I thought you were safe—on your way down south," he said.

"That is what I wanted you to think. That is why I staged the thing the way I did and left that note. Instead I came here and stowed away. It was just that we are partners in all other things. I didn't want to be left out on this."

"You're a selfish brat," he said, kissing her tenderly.

"What next?" she asked. "Why did you have to come along at all? Couldn't you have fired the rockets by remote control?"

"Yes. I could have. After that I would have lost control. The giant atom must be gotten rid of at all costs, and I mean completely. If the timing had been wrong, it would have hit the moon. If you can imagine the moon shrunk to a fireball one ten thousandth its size but with the same mass, you can imagine also how little benefited the earth would be by transferring the cancer atom from here to there. Think, too, of how much worse it would be if I were to dump the atom here and it should wander into the field of Jupiter and set that enormous planet afire."

"Or let it drop into the sun to turn it into a raging nova," added Kitty. "Yes, I see now why you had to do it this way."

They fell silent, gazing at the jewelled skies.

"Let's have a look at our passenger," said Bennion, after a time.

He pulled over the periscope that gave a view of the interior of the ship. All that could be seen was a field of intolerable brilliance.

"I'm afraid our baby has eaten its way out of its shell. Next it will go for the driving tubes and the hull. A spaceship with a ravenous parasite in its bowels is not destined to last long, my dear."

Her laugh came as a merry tinkle.

"Don't go melodramatic on me, Stevie darling," she said.

"I won't," he cried. "I was simply trying to prepare you for something. That was all."

He reached for a lever and gave it a vicious pull. He jabbed at a dozen buttons. The ship shuddered in reply, seemed to twist and be about to roll over. Then it straightened out and went on before. He took another peep through the periscope. He shoved the eyepiece away and began unbuckling his armor.

"We may as well be comfortable," he said. "Take off yours."

There followed the clankings and thuds as the heavy outer garments fell to the deck. They were left in their gray slacks they wore underneath.

"Now," he said, "how about throwing together some chow? I can't remember when I ate last."

She smiled gaily and opened the pantry door. Then her hand reached for a package of food concentrate. She knew the crisis must have been passed.

IT WAS half an hour before they finished breakfast. He smacked his lips and strode to the periscope. There were a few seconds of twiddling and searching before he snapped on the switch that brought the telescreen into full action. The screen went dark and it was as if they were looking out into the velvety star-studded void.

He shifted the controls slightly and a bright star came into view. It was blindingly brilliant, fiercely blue, and its dazzle made all the other stars pale into insignificance.

He sat down and regarded it. She sat down beside him and nestled close to him, seizing his hand and holding it against her cheek.

"Is that it?" she asked.

"That is it," he said simply. "*The Star of Hope.* There goes our little playmate of Fox Mountain—outward bound, forever and ever. It is the seed, the germ, of a new blue dwarf, but it will have to find its fodder in some other system. What we did was haul it out here into the void and give it a parting kick to speed it on its way. And there it goes, wrapped in the fragments of Buck Turner's Ark. Now we're through. We're on our way home."

She snuggled closer. He placed an arm about her.

"When do we land?" she asked.

"Say," he cried, sitting up and taking his arm away, "you're a cool one. You are as matter of fact about this as if we were out for a spin in a car."

"Why not?" she said. "I got used to the idea days ago when I first tumbled to what you were up to. Don't forget that I can read blueprints too. This control car was too much like the little

Katherine to be funny. That was what gave me my first hunch. And then the detaching gear and all that. I saw you could unhook it in space and let the rest of the big ship drift on. After that, when I climbed up here yesterday and saw the Anrad lining—"

"You're just too smart," he said, smothering her in kisses. "A guy can't get away with a thing."

"No," she said, when she caught her breath, "not when he tells you right at the outset that he has an ace up his sleeve.

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THE LAST WOMAN

By THOMAS S. GARDNER

The Girl from the Past is Hated by All the Universe, Except Explorer XI2—the Only One Susceptible to Love!

THROUGH the long lonely days the Last Woman reclined on a couch and watched the dribbling throng of Intelligences pass.

From where she was she could see the tall towers and skyscrapers of the largest city on Earth. She knew it only as Nuk. Twenty thousand years ago its people had called it New York, but that had been in the Golden Age when there were two sexes. Through the graceful colonnades that once had been called Grecian, the Last Woman saw a silver torpedo-shaped vessel leap into the empyrean blue with ever increasing acceleration.

Almost immediately it was a silver speck, a dot in the infinite and then it was gone. She knew that in it were men of Earth on the Interplanetary Patrol. Before they returned they would see the cloudy sky of Venus, the blazing deserts of Mars and perhaps the Mining Companies on the cold dead Moon. Her heart swelled with envy, but those adventures could never be for her. She was an anachronism.

A sudden gust of hate swept over her and turning suddenly she looked out the other side. But here she saw the tall spires of the Natural Science Laboratories, which were more distasteful to her than ever. Idly she let her gaze rove over the hurrying crowds in the street below. Some always turned into the archway and approached her dais, for her fame had traveled to the farthest point of the solar system.

The Last Woman wrinkled her nose in disgust at the group that approached her now. The varying types of the planets were well represented. Only the metal men were absent. They never came. With their electrical brains and metal bodies came a cold disdain of anything that harped of the foolish, sentimental past that poets were wont to call the Golden Age.

In this group were several of the seven-foot lizard men of Mars with their big brain cases and darting eyes that saw everything. They laughed at her and passed comments on the Last Woman. Her face flushed at their cold merciless humor. She to them was another animal of Earth to be examined and discussed. The Last Woman felt sorry for the Venusians with their four-foot ant-like bodies. They seldom if ever spoke, but merely looked at her. She couldn't help but feel that they were sorry for her, that they disapproved of the Earthmen exhibiting her as if she were an animal.

Ah! the Earthmen. The Last Woman hated them. They had no sympathy for her. They were gods and she—a woman. She represented to them all that they had fought and destroyed in the past and so had reached the mighty pinnacle of knowledge and power that was theirs—lords of the solar system.

AS THIS group approached the railing separating her from the observers she saw that it was a class from the University. The Professor in charge was Historian Z11. Of all things on earth that the Last Woman hated most it was this man. He took especial delight in recounting each time he brought his class to see the anachronism the history of the Science Civilization and of her. Historian Z11 smiled a cold greeting, turned and faced his class to begin his lecture.

"It all began back in the so-called Twentieth Century," Historian Z11 began. "Henry Zeeman, now known as Biochemist G4, was attending Columbia University in the ancient city of New York. You will probably wonder at the peculiar nomenclature of the people of that time. It was a relic of the Dark Ages in which the names denoted occupations, paternity, and sometimes ownership. Zeeman was

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EDITOR'S NOTE

SOME stories are forgotten almost as soon as they are printed. Others stand the test of time.

Because "The Last Woman," by Thomas S. Gardner, has stood this test, it has been nominated for SCIENTIFICTION'S HALL OF FAME and is reprinted here.

In each issue we will honor one of the most outstanding fantasy classics of all time as selected by our readers.

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(Illustration by Paul)

Historian 211 turned away from the Last Woman to begin his lecture

considered peculiar by the young men of his time because of his dislike for girls. Pardon me, fellow scientists, but the word 'girls' was used to denote adolescent females. Whenever Zeeman was questioned on the subject he admitted that he did not necessarily dislike girls but that the time wasted in their company could be used to much better advantage in experiment in the laboratory. He defended this point of view vigorously.

"Now contrary to many of the medical men of this day Zeeman was not abnormal. He was as much alive and healthy as any young man of his time. But Zeeman was possessed of a driving desire to know. In order to eliminate emotion from his life altogether Zeeman experimented with different chemicals and nearly wrecked his health in doing so. Some would repress emotion to a certain extent, as the nitrates, but in doing so would affect the nervous system.

"Zeeman had just about given up hope of achieving his purpose when he ran across an account of the isolation of the four sex hormones—we know now that there are nine—by several scientists. This was the first ray of hope that Zeeman had received. He was then twenty-two years old. Two years later he found an account of the chemical synthesis of these hormones.

"Zeeman analyzed the problem this way. If emotion and the libido were caused by these hormones what would be the effect of destroying them in the body as soon as formed? Would the secondary sex characteristics be affected? We know now that the secondary

sex characteristics were not the result of the hormones then found."

"If they had been the result of those four all mankind on Earth would be neuter rather than intensely masculine."

"Ha! Ha!" a Martian boomed. "I can imagine a thin-chested neuter on the Interplanetary Patrol. *Awrrk!*"

"I think that we Earthmen can take care of ourselves." Historian Z11 continued as he flexed the muscle over his chest. "It was in his last year at Columbia while working on his research problem for his Doctor's degree that he discovered the compound we call the Elixir. As you know the Elixir was a fabled liquid that would renew youth. This compound made men into gods and in the Council seven thousand years ago it was decided that the name Elixir be chosen as a permanent name instead of the chemical one used until then.

"In a concentration of a millionth molarity one drop sufficed to break up the four sex hormones during a period of six months. The compound acted as a catalyst and itself was not used up. The dose was injected directly into the blood stream. Success was his at last. The next thing to do was to convince the world. Within five years over a hundred of Earth's foremost Scientists were using the compound regularly.

"All the energies that had been turned toward sex and the emotional side of life were released for thought and work. Every branch of science advanced and the scientists began to control the money and power resources of the Earth. The Moon was explored and its rich mineral deposits worked. Fellow scientists, that was the first step toward our Science Civilization."

"You mentioned the exploration of your Moon, Historian Z11, what type of space vessel was used? No space vessels reached Venus until the fortieth century."

The shrill voice of a Venusian had piped this.

"WELL may you ask, Venusian. I have ever noticed that you have given very close attention to my lectures and I freely predict a glorious future for you. The ancients used crude rocket propulsion with molecular energy motors. In the Museum you may still see the first vessel that reached the Moon. I shall request Physicist S178 to explain it to you.

"But I digress. The second step came twenty years after the discovery of the compound we call Elixir. Surgeon N3 found a method of forcing nerve cells to heal quickly and join one end of a severed cell to the end of another severed cell and grow together. Can you realize what that meant? Previously men grew old and died. Their life work was cut short and someone else had to take it up.

"But with the great advance of antiseptics and surgery the discovery of Surgeon N3 enabled the brain of a great Scientist to be placed in the body of another man and he could carry on his work. This was done secretly for over two hundred years. The Scientists formed a coalition and began their plans to rule the world. That was the second step."

"Did not anyone ever suspect what the Scientists were doing?" a Martian asked.

"Yes, several did. But they mysteriously disappeared. An empire cannot be built on the fabled 'milk of human kindness.'"

"Where did the metal men enter history?" a Venusian inquired.

"That would take us too far off our lecture, but in passing I will add that Physicist S245 made the first electrical brain. The metal men were a great help in the war of the sexes. But I am anticipating. From your courses in Biology and Heredity you know that in Earthmen the determinant of sex is the XX and XY chromosomes in the sperm. The former fertilizing an ovum gives a female and the latter a male. After the twenty-seventh century, Scientists awoke to the fact that there was not room for the normal and subnormal men and the conflict between sexes had reached a point that women were feminizing civilization to such an extent that the variability in the male had almost ceased.

"Since all progress has been due to the variability and mutation of the sperm, the race was in danger. The first Council of the science empire was called. They decided that Woman must go. They based their decision on the fact that the female bred truest to type and held the primitive characteristics longer than the male, and that she reverted to the primitive type the quicker.

"The way was open because Biochemist G67 had synthesized artificial ova over fifty years before. The plan was to use a fixed ovum as a base and let all variability lie in the sperm. By selecting the type of sperm desired only males could be produced. These fertilized eggs could be raised in incubators.

"There could be no turning back. There were two million Scientists and over five hundred thousand metal men. Atomic Physicist SQ132 had developed the heat ray twelve years before. In thirty-four days of battle every woman, child, and man other than the Scientists died. At last Science had triumphed. Thus in the year 2794 A. D. the Science Empire was born."

"What did A. D. mean?" inquired a Venusian.

"Pardon me, I had forgotten. A. D. was the abbreviation of two words Anno Domini."

"If all of the women were killed and the inferior men were also killed, how did this woman come to be?" inquired a Martian.

The Professor of History smiled a cold smile. There was mirth in it—of a sort. He glanced at the reclining figure on the dais and smiled again.

"This woman! Why she is an accident. An XX sperm slipped by the examination board. After the birth of the infant the Scientists decided to let it live and exhibit to the varying types of life what primitive man thought most desirable."

A RIPPLE of mirth swept the class. The woman flushed a dull red. Her violet eyes blazed hate at the Historian. The Historian smiled with the cold assurance of a great race examining a primitive savage. He knew that this was an old story to her. That she had been well educated. There was a great deal of cruelty in these supermen. Historian Z11 took it out on the Last Woman.

The sun was sinking, long black shadows crept across the floor. Suddenly an orange beacon blazed far across the city. Night was coming and this mighty city was preparing to continue its work. Only the Last Woman felt depressed. The night suggested death and the Last Woman was the only one on that Planet who was fore-doomed to die without a single helping hand. Her brain would not be transferred.

The class turned to go. It was almost time for their class in Matrix Calculus. A single Martian lingered looking at the woman.

"Anachronism!" he hissed.

Martians were like that.

The woman rose wearily from her couch. The robot had come for her. The little metal car driven by atomic energy awaited. The woman entered and was whisked away. The night wind whistled through the deserted building. The last rays of the dying sun fell full on a statue in one corner of the building. It was a statue of Niobe—a relic of ancient Greece. The statue seemed to be weeping. Was she weeping for the Last Woman? No one could tell.

PATROL ship IPPP56 was returning to earth with Explorer X12 who had been wrecked on the asteroid Ceres for six Earth months. The Commander V15 was well pleased. He had searched for months for the Explorer through space along his patrol route. On examination the derelict had turned out to be the missing explorer's space ship. A great meteor had torn completely through the stern wrecking the atomic motors and letting his precious atmosphere out into space.

There was no sign of his crew of Martians. After carefully plotting the course of the derelict it was found that it had come from the asteroid belt. So the patrol ship had set out in hopes of solving the mystery. Twelve days before a flickering violet beam had been observed on Ceres. On investigation the lost explorers had been picked up. They had lived on the raw products of the giant fern vegetation of that planetoid. But this is not a chronicle of the hardships that they had gone through. It is sufficient to note that they were rescued.

Explorer X12 stood before a quartz window looking out at the blackness of space. A few stars shone like diamond dust on black velvet. The Commander entered the room and touched the explorer on the shoulder.

"Quite a change from the barren sky of Ceres, eh!" he said quietly. "You were very lucky in preserving a violet light. You have had an interesting adventure. The Scientists of the Council will be interested in your story."

The explorer shrank back, his eyes wide open in fear, and his face pale.

"No!" he cried.

"What's the matter?"

"I don't know. You know of course that I ran out of Elixir."

"What! Man do you realize that your body has become accustomed to it. What will the result be? Here, take a shot now."

Sudden fear shook the explorer in a palsy.

"I tried to. The first injection made me very sick. My body won't stand it. I tell you I won't. I won't."

The Commander spoke slowly. "Come, you must brace up. Without Elixir you will become an atavist. The first since the beginning of the empire. The Council will condemn you to death. Do you want to become a savage?"

The Explorer shuddered. Beads of perspiration broke out on his forehead.

"I can't now," he mumbled.

"Very well, but if you do not come out of this attack of protoplasmic insanity I will have to report you to the Council." So saying this he turned and left the room.

The space ship plunged on.

THE Last Woman was before the Council —that body of the Solar System's greatest Scientists, Earthmen, Venusians, Martians, all were represented here. At the head was the greatest brain on the planet—Metal Man 89. He was the sole representative of that machine civilization. The Council was tired of the Last Woman's attempt to take a hand in interplanetary affairs.

They had just warned her that if she persisted the sentence of death would be passed on her.

Proudly she stood and looked the Council over, but it was the look of a hunted beast. They were her superiors in every way and she knew it. Slowly she turned and passed from the Council Chamber. As she left Explorer X12 came in. Both stopped. What was this that stirred in the breasts of both. Could it be that for the first time in over nineteen thousand years love flamed? The explorer sucked in his breath. He was a young man and still inhabited the body he was born with. The Last Woman smiled and passed on.

The Council gave the Explorer over to the Scientists to cure within six months. He was temporarily classed as an atavist and a great deal of interest was shown in his peculiar case. Why the man had actually developed emotions. How primeval!

The Last Woman looked into the long mirror in her private rooms that night and smiled. She was a beautiful woman from the viewpoint of twenty thousand years ago. Well-formed, with golden hair, violet eyes, cream complexion and with the grace of a gazelle. Suddenly she laughed, for the first time in her life she had an interest in life and the world. She was in love. If Psychologist M09 had seen her he would have immediately diagnosed it that way. Why should I go against his opinion. He should know, having delved deep into the nervous reactions of the lower animals and the simians. A light footfall fell on her ears. She turned with an exclamation for no one was allowed in her rooms. Only the robots and they did not count. The explorer stood in the doorway and held out his arms. The Last Woman needed no second invitation.

"It is death to be found here," the Last Woman whispered hurriedly. "You must go at once."

"It is death anyway. I have gone back to the past. I have spent the evening in studying the old books in the library that described love and life. I love you. I can't help it. What can I do?" The man's voice was broken and his giant frame shook as with an ague.

"I thought you were under observation in the Medical Ward?"

"Yes, but I slipped out."

A gong rang loudly. The man gave a guilty start and started for the door.

"Look for me tomorrow night." His last agonized whisper floated back and he was gone.

The next day passed quickly. The Last Woman seemed to live in a dream world. But as soon as she opened her eyes the spell was broken. A shudder of horror shook her frame when she contemplated the gigantic civilization she was trying to outwit. Part of the day she was in the laboratory of Comparative Anatomy. Here her body was contrasted with the females of the simians. Disgust claimed her as she heard that morning of the completed exploring vessels that were to take off for Alpha Centauri.

Would he never find it? Ah! Here is was, "Methods of Life, Phychology, and Mores of the Primitive Savages inhabiting Earth prior to the Scientific Empire." The reference was to the great mass of books, most of which were worthless, in the building reserved for the prescientific period.

The worst fears of Psychologist MO6 were being realized—the explorer was going primitive. Already a hunted look had come into his eyes, his attitude suggested stealth, and he trembled as he searched among the millions of books that were indexed in the library. Selecting several of the most pertinent books in regard to existence in a primitive environment without all the modern appliances of the Science Civilization, Explorer X12 left the building. But what was that? A Man! Only Psychologist MO6 who shook his head at the unreasoning attitude of the explorer.

A FLAMING sun sank behind the tall buildings of the most wonderful civilization the solar system had ever developed. Long purple shadows chased one another along the pavement, an orange beacon rose from the southern part of the city, while a man slunk furtively toward the gigantic building that housed the Last Woman.

The Last Woman watched the door in eager expectancy, for had not Explorer X12 said that he would return? Ah! There were his footsteps. The next moment she was in his arms sobbing with relief—for she was just a woman although highly civilized. The man was incoherent with joy and whispered rapidly.

"There is a chance that we can get away. Do you remember the expedition that was to start to Alpha Centauri? The cruisers have been completed and all equipment has been placed aboard. We can slip away in one of the cruisers. They are the fastest ships in the solar system."

"Where could we go? There is no place in the solar system we can hide. Don't you see that if we escape it is a blow at the Science Civilization. There have been no mistakes or failures since the beginning nineteen thousand years ago. That is why the Earthmen rule. Where could we go?" The woman's attitude.

"They are going to Alpha Centauri, we will go to Polaris many light years away."

"We will grow old and die before we get there. We cannot renew our bodies or transfer our brains." And the woman began to sob.

The man laughed and then explained the relativity of time and space. How it would take many years to reach Polaris but to the occupants of the car it would seem as if it were only a few months. He told how the cruiser would approach the velocity of light and how their relative lengths and time would be altered.

A televisor disk clouded and the two whirled in fear. A mechanical voice droned. "The completed expedition for exploring interstellar space will leave day after tomorrow. The latest telephotos will be broadcasted at once."

The disk became rose-colored, then shot with whirling streamers of red, then abruptly cleared.

The scene that was presented lay in upper Nuk. Back of the foreground could be seen the tall buildings of the city. In a little cleared space lay six great cruisers. They were not spectacular but efficient and deadly. A little over two hundred feet in length, torpedo-shaped, and driven by electronic rockets.

The voice broke in again. "The vessel is fully provisioned for a period of ten years and is armed with high-powered automatic rifles for reducing cities, with ultra-violet and heat rays, the electron guns, besides poison gases and high explosive bombs. The crews are picked so as to represent all the inhabited planets. It is the hope of the Council to extend the sway of the Science Civilization over the galaxy. Within two thousand years the Physicists who are investigating the fifth and sixth dimensions promise a means of propulsion and velocity attainment greater than the velocity of light."

There followed a detailed survey of the interior of the cruisers. On all the planets only two followed the televisor views with fear and trepidation. What luck! The controls of the ship were of the standard type used on the interplanetary vessels.

"Have you any weapons?" the Last Woman asked the explorer.

"Only an automatic and a flame pistol. If we can get one of those cruisers and get started out of the atmosphere they can never catch us. I'll be here tomorrow night two hours after the orange beacon comes on. Be ready."

The Last Woman was still fearful. "Won't they signal Mars to stop us? Oh, we can't! We can't!"

But the explorer was reared in a different school. He did not forget that he was once a superman.

"By the time we reach Mars we will be a thin disc due to our velocity. They can never locate us. We will make it, never fear."

"Tomorrow!" breathed the woman.

ROBOTS labored deep beneath the cities tending great machines that steadily turned the machinery to supply the Earth. The expedition's crew came in from Venus and Mars. The Martians laughing and talking, taking it all as a rare experience; the Venusians silent as ever going about their work efficiently. One of the Metal Men was to head the party. Many years would pass before they would return to Earth. What

would they find in the system of Alpha Centauri? The explorer and the Last Woman anxiously watched the sun traverse its slow path across the sky. Would night never come?

At last night fell and the sun set in a sea of crimson. The explorer was murmuring prayers that he had read in the ancient books. Explorer X12 had indeed gone backward. The atavist's mind was a blur of conflicting emotions, his intellect clouded, fear struggled with hope. Under his tunic he had hidden the powerful automatic and two belts of clips besides his flame pistol with extra charges.

If he had been caught with these arms his life would have been forfeited, especially since he was supposed to be taking treatment for his mental ailment. Lights blazed from the pinnacles of towers, the hum of the mighty city became a lulling rhythm, official and private sky cars now concentrated in the great laboratories under arc lights that made each corner blaze. There was no rest in Nuk. There was activity everywhere and then more activity—that is how the Earthmen ruled.

The explorer crept from the steel skyscraper's emergency exit and hurried to meet his mate. The Last Woman was waiting. There was little that she could take since speed was necessary. Explorer X12 entered silently—the robots must not be disturbed.

"We must go. I have worked out a route underneath the city. We will take a tube car from the Central Station to North Ward 8 and then pass through the Dissecting Rooms, since they will be deserted at this hour, and then it is only a short distance to the cruisers. Only a perfunctory guard will be kept as they think that no one will be interested in the cruisers now. Come!" So saying the man picked up the pitifully small bundle of personal effects of the Last Woman.

The automatic elevator carried them silently to the eighth level beneath the street. Here wide corridors led to other buildings. The walls were lined with pipes and conduits. The man carried the flame pistol in his hand. The throb, throb of the machines kept the walls gently vibrating. Hot air swirled around the two, and a feeling of power gigantic filled their hearts. Televisor disks whirled at interesting corridors. Were they being checked? Evidently not, for no alarm was given.

Two more corners to go and then the Central Tube Station. A robot moved ponderously from a branching corridor. Its crystal eyes gleamed as it saw the two, but before it could give warning the flame pistol shot a violet-blue flame that cut the metal body almost in two. They went on. A tube car came to their signal and Explorer X12 hurriedly pushed the Last Woman in and closed the door.

The car moved off slowly until it entered the tube then shot ahead with terrific velocity, then it slowed at the station of North Ward 8. Here was the first big test—could they enter the corridors leading to the Dissecting Laboratories unseen? How they managed it the two never understood but at last they were hurrying down the dimly lighted way. The explorer whispered.

"We must pass through this chamber." Slowly he opened the door and apparently seeing no one entered. A gigantic Martian far across the long room glanced up from a specimen that he was examining, and then in long leaps came rushing toward them. The automatic spat once, a beady eye became a bloody hole, and the body crashed to the floor. They must hurry. A noise, a suggestion of a sound, they whirled, there in the door stood a Venusian with levelled heat ray.

Defeat! The woman sobbed as overwhelming despair swept over her. The Venusian regarded them silently, lowered his ray, turned and disappeared. The Venusians were sympathetic.

AT LAST the cruisers lay before them gleaming in the starlight. How peaceful everything looked—then a wandering beam of light outlined them clearly. The city awoke with a roar, light flashed, gongs rang, and guards broke from the entrance to the field and ran toward the two. The explorer seized the hand of the Last Woman and ran toward the lighted opening in the cruiser that lay a scant two hundred feet from them.

A flash struck the ground by them sending up a spout of dirt and stones. They were almost there. A red beam flashed by the running pair, it struck the polished wall of beryllium of the cruiser and glanced harmlessly off into space. They reached the portal, lunged through and the man had closed the lock. Now came the big test. The explorer must get away from the Earth. Already other ships were being manned and the alarm sent out to the Interplanetary Patrol.

"This way to the controls—we must get there," said the man as he ran toward the bow of the vessel. The control room was reached—but how among the myriad controls, buttons, and switches could the man find the right ones.

His training as a superman came to his aid. He snapped over the man power switch and the gigantic dynamos that furnished current for the powerful fields of force leaped into activity. They whined like hungry dogs and settled to a steady roar. Viciously he jabbed at the gravity equalizers, turned on two propulsion units—more would raise the shell to incandescence in the earth's heavy atmosphere.

"Why are you heading north instead of out into space?" the Last Woman inquired.

The man laughed gleefully.

"They will be expecting that and will concentrate the Patrol above Nuk. We will fool them." But he was forgetting that he was no longer a superman but a primitive while they were trying to outwit brains that had never been defeated.

Soon the frozen plains of the north lay beneath them. Their velocity was over two thousand miles per hour at an altitude of sixty thousand feet. The Aurora hung like a curtain before them; green and red streamers signalizing success or defeat.

On their televisor disks appeared a dozen dots that swiftly grew into long ships of the Interplanetary Patrol. The Last Woman screamed and the man groaned. A cold hard voice spoke from a receiver.

"Return to Nuk at once. You are surrounded. Fools!"

The man seemed to go insane and screamed like a wild animal.

"You'll never take us back!" He pushed the ray controls madly. Five blinding beams leaped out, two red, two violet, and one the ionizing beam of a cathode ray. Three ships were caught in this wholly unexpected attack. For who would dare to defy the Patrol!

One of the red beams met a vessel head on, it leaped into blinding, coruscating incandescence, melted and disappeared. A violet beam swept over a ship, it continued its plunge toward the Earth that lay like a cradle of protecting white beneath them. The cathode ray caressed a ship and that ship was no more. Those electrons driven at almost the speed of light broke down the electrical field of the nucleus of the atoms and the whole ship exploded as the nucleus disintegrated with violence.

The explorer shouted in joy—but too soon. A brilliant plane of light flashed from the flagship of the Patrol, and the captured vessel, neatly cut in two, started on its long swift plunge toward the ground. The Earth rocketed toward them as the man seized the woman in his arms and leaped toward the emergency cylinders too late—his speed was terrific and the cylinder struck the snow field and plunged far down into the icy blanket. Oblivion swept over the two. The Aurora shimmered and blazed in the cold heavens and seemed to chuckle.

The Council Room was still. The greatest case of insubordination that had ever arisen in the solar system's great civilization was being tried. The atavist was a pathetic broken figure, the Last Woman alone defiant. All the evidence had been heard and the Head of the Council, Metal Man 89, gave the verdict that will go down into History as the policy of the Science Civilization.

HIS cold, motionless voice brought shivers to the condemned.

"Over nineteen thousand years ago we, the Scientists of the Earth, decided that for the good of Civilization and the progress of the race that there should be only one sex—male. Putting all our energies to the task of building this Civilization we succeeded beyond our wildest dreams. We rule the solar system and soon will rule the galaxy. You represent that influence that for ages dragged mankind back to the primeval slime out of which he had struggled.

"You even dared to light the beacon of Love in a Civilization that overthrew its reign that had enwrapped the world in its coils like the octopus does its prey. Bitterly do we regret allowing the Last Woman to live, for it has deprived us of a good man—Explorer X12. He could have been cured had not the chance to slip backward presented itself. Never again shall we allow or give an anachronism or an atavist a chance to live. They must die even as we the Supreme Council of the solar system condemn you to death by the flame."

No sound was heard for several seconds as the Metal Man ceased speaking. The man was calm now. He raised his head and looked long at the tier of gathered Intelligences. Did he sigh for his lost position? Rising slowly he took the hand of the Last Woman and walked slowly by the seated Councilors toward the metal door that led into the chamber of flame. Reaching the door he turned and looked back. The rays of the sun lit up the crystal emblazoned chamber with an ethereal beauty.

The Last Woman was stunned—she couldn't believe it yet.

The two passed through and found themselves in a small metal walled room with no exit. Explorer X12 turned to clasp the woman in his arms—but even as he turned the room leaped into brilliant flames. When they ceased an instant afterward only two little conical piles of ash were all that remained of the Last Woman and the Explorer—those who had dared to love. An exhaust fan started to whir with a subdued murmur. The two piles of ash rose up toward the ceiling, met, coalesced, and as one passed through the vent. United at last.

Outside a Martian laughed.

"But—How Can You See Through Somebody Else's Eyes?"

DIXON WELLS was baffled—but he underestimated the astonishing abilities of van Manderpootz, scientist extraordinary!

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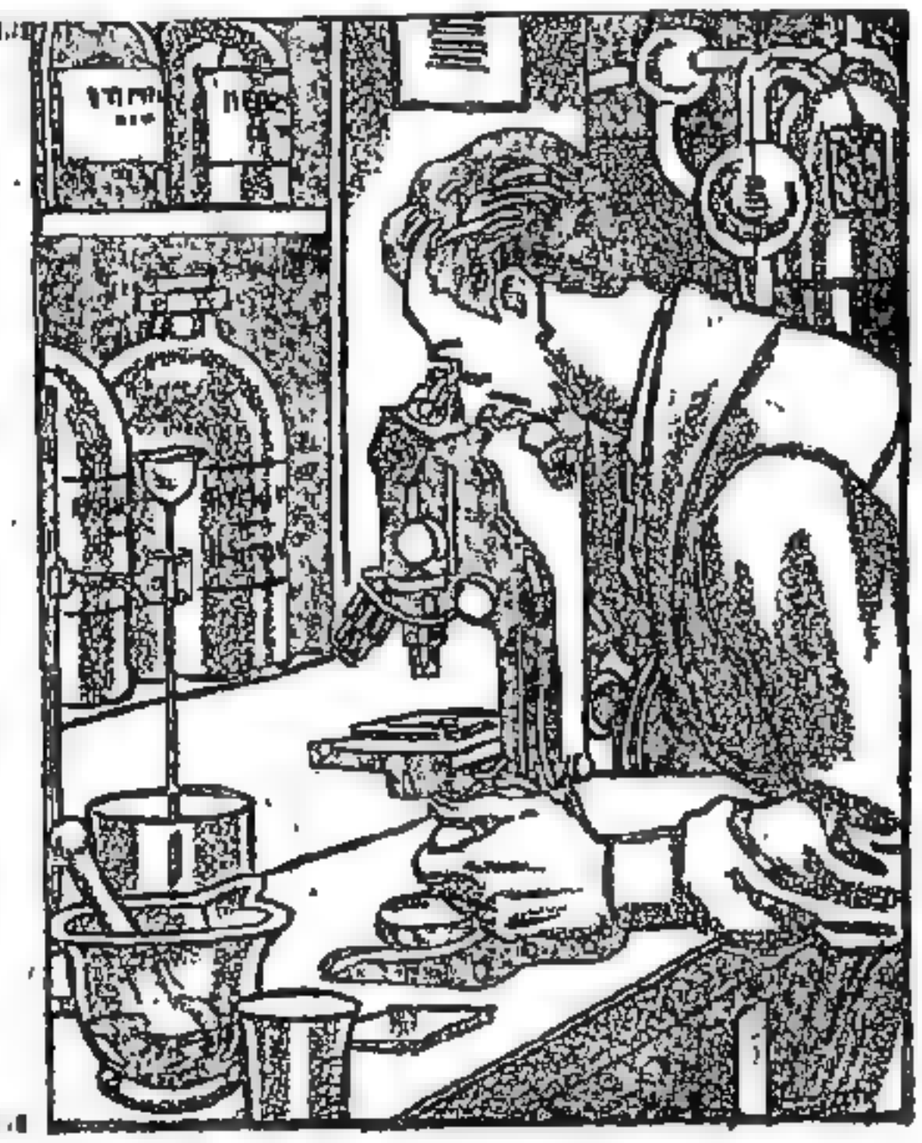

BEYOND THE BOILING ZONE

By
ROSS ROCKLYNNE

Close to the Sun, Earthmen Find the Planet Vulcan, a Two-Dimensional World!

FIRST MATE CORBLY'S grizzled face was pale. For the last ten minutes he had kept his thoughts to himself. Now he could bear it no longer. The chartered yacht *Venture* was dropping on an angular course toward the scalding-hot face of the Sun. The ship was already in the dreaded "boiling zone," protected from the heat only by the new Grimson heat-shields.

Mercury was far behind. And the planet Vulcan—according to Captain Wyand Trask—was ahead. But there was no sign of that trans-Mercurian planet anywhere within millions of miles. Even if it was within a million miles, Corbly knew, the ship and the men in it would fry to crisp cinders before the objective hove in sight.

He whirled toward Trask, who was lounging back in the captain's chair showing no slightest alarm of the death trap into which he had ordered the ship.

"You're *sure* I shouldn't countermand the last orders you gave me, cap'n?"

Trask met his glance coolly.

"The ship is to remain on its course for the next fifteen minutes, with a

Pressing around the cage was a crowd of hideous beings

half g acceleration."

"The heat-shields will give out in another ten minutes!" Corbly panted.

Trask took out a notebook. He flipped pages.

"In another ten minutes we won't need the heat-shields. At precisely seven forty-five, Mr. Corbly, speed will be cut to an approximate seven-tenths miles per second, and the crew is to prepare for a landing."

"Prepare for a landing?" Corbly asked hoarsely, "when there isn't a trace of a planet or any conceivable landing place within millions of miles?"

"You will so order the crew," said Trask coolly.

With a strangled curse, Corbly drew the engine room tube to his lips.

DOWN in the hot engine room, with the Wittenbergs howling full blast, Chief Engineer Jim Brille's grease-smudged face writhed in disbelief as he listened to the first mate. He dropped the speaking tube back on its hook, a look of wild, decisive fury darkening his eyes.

"We got a crazy man captaining our ship!" he bellowed at the men.

"It ain't enough that he plunges us beyond the orbit of Mercury into the boiling zone. It ain't enough that he tells us to feed the power into the Wittenbergs when he knows the heat shields are going to give out. We're to prepare for a landing—a *landing*, on a planet that isn't here!"

He burst into a wild, incredulous laugh.

Most of the men gathered around him, muttering profanely. One of the older men, wiring and accumulator, looked up, his face grave.

"Better go slow, Jim," he said quietly. "Trask isn't any dummy. He pulled down the Pulitzer Prize in astronomy last year. I guess he knows what he's doing."

Brille's face turned red.

"He knows what he's doing!" he howled. He grabbed the older man and shook him by the shirt-front. "You want us to fry, you small fry, you? I don't care if he did discover a new comet without benefit of a telescope. He's off his bean. He's nuts!"

The accumulator man patiently waited until Brille finished shaking him.

"You men haven't any call to complain," he reminded. "Trask told us what he was up to when he hired us back on Mars. He said it was going to be a dangerous expedition. He told us plainly that if we didn't feel like signing up we didn't have to. You all agreed then you were willing to go with him, to the planet Vulcan, and look for Dr. John Spalding. The fact that Vulcan hasn't showed up yet, doesn't mean that it *won't* show up, does it?"

Brille flung him back with a round curse.

"And when will it show up, you turn-coat?" he rasped. "After the blood starts boiling in our veins? Trask is a lily-fingered mathematician who doesn't know beans about the practical side of captaining a ship. Everything he's learned he's gotten from books. Has he learned the hard way, like any of you men have—like *I* have?" He whirled back on the men. "Are you with me? Do we stop this business now?"

The Holloway vacuum feeder man nodded grimly.

"We're with you, Jim. Lead the way!"

And a score of angry voices rose in assent.

Brille turned with a savage grin, and pounded up the steep metal stairs twenty brawny men flowing after him with a will.

CAPTAIN WYAND TRASK heard the pound of their feet in the corridor at the same time as Corbly. Corbly leaped to his feet, stepped to the transparent door. He took one look and turned back, paling.

"It's come," he stuttered. "I knew they wouldn't take this lying down."

Brille pounded into the room. The rest of the men flowed in, until they formed a semi-circle around Trask. Brille put his greasy hands on broad hips.

"Well?" he sneered. "What you goin' to do about it? We're here to tell you to turn this ship back, *now*, or we'll take over the ship."

Trask took a look at his wrist watch.

"In six and a half minutes, unless you men get back to your stations, the *Venture* will crack up."

Brille's expression was one of amazed humor.

"We're going to crack up, men!" he cried. "On a planet that ain't here!"

"Precisely." Trask's voice thinned out to a filing sound. "The same planet that Dr. John Spalding landed on three months ago. Or maybe he cracked up, the way we're going to if a counterthrust isn't set up against the planet's gravity in six and a half minutes—six minutes now."

"Poor Cap'n Trask!" Brille cooed in high humor. "Doesn't he know that in six minutes the heat-shields will give out? Didn't his books tell him that even a Grimson heat-shield can't hold out forever?"

"In two minutes," said Trask, "the heat will die away. However, in fairness to you men, I'll take one minute of that time for a complete explanation—"

Brille didn't allow him to finish. He must have known he was battering against a stone-wall with a ten-cent hammer, for he abruptly used battering ram tactics. He threw himself at Trask, who, searching with difficulty for words and ideas to explain an incredible truth, was not ready. Brille's ham of a fist caught him flush on the chin.

The fools! The utter, bulge-brained fools!

Brille caught him again with an arcing fist. Trask hit the floor heavily; and consciousness must have departed his brain at once.

He came to his senses in the brig, conscious that somewhere there had been a terrific shock.

He was pressed against the wall of the two-by-four ship's jail, then released as the ship teetered over and was dreadfully quiet. And in that moment, Trask knew what had happened.

He groped dizzily for the door, holding onto the bars. Five minutes later, heavy feet approached. Brille came to the door, face haggard. Keys rattled. The door swung open.

"Ship's cracked up, cap'n," Brille said huskily. "We guess we need some good advice."

TRASK kept his hands quietly at his sides.

"What happened?"

"It happened the way you said. By the time we got ready to turn the ship, we couldn't budge her. She was caught in a gravitational field. A planet leaped out of thin air." His lips worked in disbelief.

"The planet is two-dimensional, Brille," Trask said.

"Two-dimensional—" Brille's eyes bulged. "So help me, cap'n, if you think you can put something over on us with some half-baked—".

"You see what I mean." Trask smiled at him bitterly. "You wouldn't have believed me.

He turned and went loping off toward the control room, Brille following, cursing steadily under his breath.

Corbly was standing at the fore view plate, staring helplessly out. He turned dispiritedly as Trask came up. Trask sniffed. He felt a cold draft.

Corbly nodded forlornly.

"We've sprung a leak in No. 2 hold."

"The air's good, anyway," said Trask.

He looked out. A planet, green with lush vegetation, rolling in hills and mountains met his eyes. It was a scarred planet for all that, however. There were deep rifts and gorges to be seen on second glance. The hills were shattered mounds of churned up rock and earth. Great blocks of stone lay canted this way and that, as if they had been tossed through the air by giants.

Corbly raised his hand and pointed mutely. Visible in the upper half of the viewplate was the Sun. It was not a Sun humans had ever looked on before. It was a circle of yellowness, without depth. It was plainly two-dimensional.

"What's the condition of the ship, Mr. Corbly?"

"Rear jets and two of the auxiliary under jets are bunged up considerable."

Trask looked at Brille.

"It's your job. Think you can repair her?"

Brille was sweating.

"Can't be done," he said hoarsely. "We can straighten up the jets and weld 'em back into shape, but the *kronite* lining is probably cracked, and that won't take a welding. We'll have to have a couple hundred yards of *kronite*, else the jets won't fire anything over a minimum blast even after they're welded back into shape again. And a minimum blast won't lift us."

"It has to be done," Trask said patiently. "Furthermore, it has to be done in the next three days, else we'll be stuck here seven years until the planet completes another revolution around the Sun."

"Seven years?" Corbly looked at Trask askance. "No planet this close to the Sun could have a year that long, cap'n. It'd be closer to twenty days."

"This planet," Trask said with emphasis, "has a year of seven Earth years."

BRILLE'S animosity was clearly written on his face.

"It's an impossibility." He said thickly.

"So's the Sun an impossibility. Look at it. It's two-dimensional. So's Earth and all the stars two-dimensional."

Trask lit a cigarette, impaling Brille with cold eyes.

"I'm not so much a babe in the woods as you imagine, Brille. This is the planet Vulcan, first observed as a dot on the Sun the latter half of the nineteenth century.

"When space flight came along, a few scientists started looking for the planet again. For a couple centuries, there were any number of scientists who saw it momentarily, but they couldn't get close enough to the Sun to prove their observations.

"I collected their facts and figures and they told much of the story about what Vulcan was, what its year was and other important facts.

"Last year I gave the figures to Spalding. His ship was equipped with the new Grimson heat shields, and he went to look for Vulcan. I think I know now why he didn't come back.

"At perihelion, Vulcan is a half million miles from the Sun. At aphelion, a million. At aphelion, for about three minutes, it emerges out of the fourth dimension."

He watched their expressions and smiled crookedly.

"Don't turn your nose up at the idea. Figure the tremendous stresses and strains set up in the vicinity of the Sun. The gravity is beyond belief. It actually warps the path of light. It curves space—witness Mercury's abnormal progression. And Mercury is over thirty million miles from the Sun. What would happen to a planet only a half million miles from the Sun?

"What has actually happened to Vulcan is that the sheer brutal power of the Sun's gravity has sheared one of the 'normal' dimensions from the planet, and substituted—a fourth dimension.

"Vulcan and the rest of the universe, the Sun included, have only two dimensions in common. Looking at Vulcan from outside the gravitational dimension-warp, it would be perfectly possible to see the planet. But one would see only a two-dimensional planet.

"Standing on Vulcan with a fourth dimension substituted for our third, the rest of the universe appears two-dimensional."

Corbly ran a shaking hand through his grizzled fuzz of hair.

"The Sun's gravity has warped time, too," he said slowly. "Vulcan takes a leisurely pace of seven years around the Sun."

"In three days," Trask said, "Vulcan will get far enough from the Sun to slip out of its fourth dimensional cocoon and exchange dimensions again. We have to get off the planet then—with Spalding.

"I forgot to tell you," he added dryly, "that you can drop straight into the fourth dimension—that is, into the heart of the Sun's gravitational field—but it's not so simple to find the path out. So we have to blast off for Mercury—quick. Vulcan will be free for only some three minutes. Maybe that's the reason Spalding couldn't get back."

Brille put his hand on the door to the upper-deck ramp. Sullen lights sparkled in his eyes.

"You might have told us all this before we left Mars," he pointed out coldly.

"I might have told you," Trask conceded. "As a mathematician, however, I know well enough there are some truths too incredible for anybody but a mathematician to grasp. I told you what I thought was important and credible, and I made sure to warn you there might be plenty of danger.

"And in the control room awhile ago I made an attempt to give you a complete explanation. You didn't listen."

He shrugged, and started up the ramp.

"I take my share of the fault, Brille."

THE telescope was uninjured. Trask climbed into the operator's chair.

As far as he could see, there were evidences that a severe earthquake had literally torn mountains and hills from their foundations. Why? His speculations were interrupted when he saw in a distant valley what must be a city, a small city, but ample evidence of intelligent life.

He climbed down.

"There's a city over there some ten miles. If the people are civilized enough, maybe we can palaver and get some *kronite*."

He looked at Brille's stoical face.

"You better get the men to work repairing the fractured jets. We start in half an hour."

The evidence of earthquake piled up as they walked quickly along. Twice they came across long streaks of red dust and building blocks which looked as if a whole city had been thrust violently to one side. More than once, they had to ford gorges.

The Sun was a two-dimensional disk most of the time. But sometimes it underwent peculiar distortions, turning ovular, elongating, actually reducing in size.

Trask explained.

"Vulcan is following a fourth-dimensional path along its orbit. I doubt if mathematics could explain that path. Loops and spirals is as close as we can get to it. Perhaps it explains why it takes seven years to complete its orbit; and maybe then in turn explains the small degree of heat. Time and spare are warped. The heat the planet receives is exactly the same total quantity as if the years were equal to twenty days. Twenty days' heat, that is, is spread out over seven years."

No one noticed the motion in the wooded slope of ground to their left. By the time they heard the rush of feet behind them, it was too late. Something hard slapped itself against Trask's skull. He fell soddenly. Blackness washed over the crazy motes of light that danced in his brain.

OF THE three, Trask came to first. He lay still, his head throbbing. He heard a peculiar jabbering sound. He raised his head, took a groggy look around.

Bars! The bars of a cage. Beyond the cage were strangely shaped buildings running amuck with streaked, fantastic colors. The cage was on the corner of a narrow, red earth avenue. Pressing around the cage was the crowd of beings from which the jabbering emanated.

Trask felt revolted by what he saw. The jabbering raised in intensity as they saw him looking. Arms raised excitedly, pointing. They were not human, although, in general, they had human form. Arms, legs, head and probably the same internal organs. But each individual differed from the other in various repulsive ways.

They were distorted. Arms and legs did not match in length or thickness. Eyes were placed wherever they happened to land in monkey-like faces. There were bulbous heads, rectangular heads, heads with no apparent necks. Some of the creatures were unbelievably tall and thin; others so small and round they could have been rolled like a hoop. In skin color there was a tremendous range, from the most blatant red to the most subtle violet.

Trask felt his stomach squirming. He turned quickly away.

"Trask!" a hoarse voice bawled.

Trask impelled himself to his feet.

"Spalding!"

The big explorer was standing in another cage twenty feet distant, his powerful hands wrapped around the bars, his bearded face streaked with tears.

"Trask!" he choked. "Thank God! I've been yelling at you for the past hour. I've been going crazy. Months . . . Or has it been years? It's been horrible, Trask . . . horrible! But—now they've got you, too!"

He seemed on the verge of collapse. Trask was shocked by the lines in his face.

"Steady!" he snapped. "Having us isn't saying they'll keep us."

In spite of the apparent hopelessness of the situation, he felt a vast load sliding from his shoulders; Spalding had been more than a father to him.

"What's this about? You'd think this was a zoo."

"A zoo it is." Spalding laughed harshly, crazily. Then he looked ashamed. He kept his voice steady with an effort, as he told the dreary story of his captivity.

His ship had landed with perfect safety. He had gone out to make observations. As with Trask, he had been set upon from behind, and came to in the cage. After that, it was a succession of days and night. There was a keeper who at intervals shoved malodorous food through the bars, or flushed out the floor of the cage.

"And it is a zoo! But to them, we're the monkeys. The distorted, filthy creatures."

Spalding shuddered in revulsion. He could hardly bear to look at the jabbering beings.

"For the first time in my life, Trask, I've found some basis for astrology. In the period before birth, these creatures are subjected to the distorting forces of constant changes in gravity, heat, light sunspot intensity. They all combine to distort the embryo. When it's finally born, it's really an individual—a horrible travesty. God!" He shook his great head.

"And they're distorted mentally, too. They've taken a positive delight in torturing me."

As if in illustration, the horrible throng suddenly started throwing small pebbles at Trask. Malicious sounds of delight erupted from them. Trask clamped his lips and endured the bombardment. It stopped when it was evident that he refused to become a source of amusement.

"You've tried to escape?"

Spalding's eyes lighted.

"There's a chance," he said tensely. "I haven't spent my time doing nothing. Look there!"

He pointed up the street to an intersection.

"Your ship!" Trask's voice was one of violent surpise.

Spalding's space-ship was on a dais at the street corner, a mere fifty yards distant.

Spalding nodded in grim satisfaction.

"They brought it on a wagon with solid wooden wheels. They don't have any idea what it is. We're going to use that ship to make our escape in, Trask!"

Feverishly he explained. These cell bars were of soft iron. For the past three months, Spalding had been sawing at the base of one bar with his belt buckle. He worked at night. The bar was sawed halfway through. In another two months—

"I'll break out!" Spalding said fiercely. "The keeper stays in a little hut behind the cages. I'll throttle him, take the keys, and free you—What's the matter?"

VERY patiently, Trask told Spalding the complete story, of the kronite the *Venture* needed; of the three-day margin they had, at the end of which time they would have to take advantage of the planet's three-minute stay in the normal universe to make their escape.

Spalding's face fell.

"I see," he said slowly. "If we aren't out within three days, we'll have to stay on Vulcan seven years. And even if we do escape in that time, my ship isn't big enough to accommodate more than four passengers."

His chin came up jauntily.

"We'll find a quicker way!"

Behind Trask, Gorbly groaned. In another few moments, Gorbly and

Brille were on their feet, the situation explained. Brille's incendiary temper broke loose. He looked at Trask with contempt.

"Go ahead and use your astronomical brain to get us out of this mess!" he snarled.

Trask opened and closed his mouth. He had no plan. Escape from the cages was of first importance, of course. But how?

Spalding's belt buckle had been too soft to work effectively at the bars. If they had something hard— But what?

"Good Heavens!" Like a madman, Trask unstrapped his wrist watch, ground it under his foot. From the mess his hurried fingers extracted the foot-long main-spring.

"I've got it! We can use watch-springs to saw through the bars! They're hard steel—practically impossible to wear out!"

Even Brille permitted himself a grudging excitement.

Since Spalding had no watch, Trask took Corbly's and quaking inside, threw it toward Spalding in an underhanded loop. For a heartstopping moment it seemed to pause just short of Spalding's outstretched hands. Then Spalding had it.

After that, maddening inaction. The day of this planet was sixty-seven hours. There were about twenty-four hours of daylight left, after which they would have about thirty hours of night in which to work. They had twenty-four hours to wait.

In those crawling hours, Trask twice saw their keeper, a beanpole of a creature almost nine feet tall, with tiny, misformed eyes. He brought their food, chunks of pale dough floating in a greasy mess. Trask was revolted, but hunger forced him and his companions to eat.

Other things he noticed, that filled him with wonder. There was some sort of evacuation going on in the city. Wooden carts, drawn by small, malformed creatures like goats, were being loaded to the brim. Furnishings, cloths, utensils, materials of every description, were being carried from the garishly painted buildings.

Why? Trask remembered the cities they'd seen previosuly, leveled to the ground by what seemed an 'earthquake. Was another earthquake due? A periodical earthquake? Absurd.

The two-dimensional sun finally went down, and blackness but dimly relieved by two-dimensional stars descended. Trask went to work immediately, and worked without stop for two hours. At the end of that time, Brille relieved him.

IN THE other cage, he heard Spalding sawing, sawing. He knew what the other man was up against. He had no relief. He would have to keep working until the bar was sawed through at the base. Already Spalding was panting.

"Don't worry about me," he called savagely, in response to Trask's sympathetic question. "God gave me two big tough hands, and I'll wear 'em through to the bone before I give up. Worry about your own job."

The weary hours passed. Trask wrapped his shirt around his rasped hands, his companions doing the same.

Brille still had his watch. At the end of exactly twenty-seven hours, Brille grabbed at the bar and wrenched. It came loose, swinging from its upper fastening.

Half a dozen seconds later, they had wormed through the aperture and Brille was adding his own strength to Spalding's. Spalding's bar cracked with a tiny popping sound. He leaped from the cage. He and Corbly sped up the red-earth avenue, ghostly now under the pale star-light. Trask and Brille were scarcely a dozen feet behind.

They got halfway to Spalding's ship. Trask heard footsteps behind him, and whirled. He was just in time to avoid the down-swooping blow of the metal stake their tall, beanpole of a keeper was wielding. Trask wrapped himself around the giant's legs. Brille was into it by that time.

Together they threw their assailant, and Trask sat on the distorted shoulders while Brille took up the bludgeon and beat the giant's brain out. He emitted one awesome scream which brought other beings from their homes before the two men were well under-

way to the ship. Dozens of them!

Brille swung about with the metal club, yelling savagely. Trask had nothing but his fists. He thanked his lucky stars for a shallow gravity, picked up a six-foot skinny length of flesh by the ankles and went into a merry-go-round. He cleared a path and went sailing for the ship, Brille after him. Dimly, he knew that Corbly had entered the conflict.

Disaster found him. He fought off one assailant only to be knocked flat by a blow from behind. With mountainous effort, he strove to rise. It was no use. Dimly he saw Brille laying around with his club. A dozen broken, bleeding bodies littered the avenue. Brille crunched one more head, stooped and picked up Trask in one arm, meantime yelling for Corbly to go ahead.

Brille reached the ship. He flung Trask inside, and turned for one more execution. Trask heard his savage howl:

"Monkeys!"

And then—a sudden sense of motion, a quiver that went speeding through the ship. And Trask knew they were safe . . . Spalding at the controls.

In his small period of consciousness, his mind must have been strangely active. A plan, mad as this fourth-dimensional world, had come to him.

An earthquake? Yes! Moreover, an earthquake that came to Vulcan once every seven years; and solved the problem of the *kronite* needed by the *Venture*.

An earthquake that would occur at the precise moment Vulcan emerged into the normal universe!

CORBLY was helping him to his feet, holding a glass of water to his lips. Trask thankfully gulped it down. He shook his head. He found Brille's eyes.

"Thanks!" he gasped. "If it hadn't been for you— We're underway?"

"Underway," said Brille, watching him narrowly, "and ready to make a break for Mercury the minute Vulcan comes out into the normal universe."

Trask started.

"Don't be a fool. What about the *Venture*'s men?"

"What about 'em? We can't save 'em. The big ship won't lift without *kronite*. We're saving our own hides."

Trask took a slow, murderous step toward him. But Corbly stopped him.

"He's right," he said miserably. "There's no use going back there. It doesn't mean they'll die. A rescue party can bring them *kronite*. Spalding's ship won't hold more than four, anyway—"

"The hell you say," said Trask coldly.

He started toward the control room. Brille's face turned brick red. He stepped in front of Trask.

"Spalding agrees with us," he shouted. "The planet will be free of the fourth dimension in fifteen minutes for a period of three minutes, like you said. And, by Heaven, we're going to get off then!"

"If we get off, the men go with us," and Trask gave Brille no warning.

His fist came smashing up with pile-driving force. Brille folded.

Trask went forward, and once Spalding saw the look on his face, he lifted his great shoulders in a shrug of resignation.

"I thought you'd feel this way about it," he admitted. "But if you can tell me—"

"You're darn right I can tell you," Trask said grimly, as Corbly came uncertainly into the room, his grizzled face baffled. "Once every seven years, Vulcan has an earthquake, planet-wide. It levels cities and throws whole mountains for tremendous distances. The inhabitants know that. That's the reason they were moving. They were taking themselves and their belongings to a place of safety. Maybe to underground caves."

Interest was showing in Spalding's eyes.

Trask resumed carefully:

"A planet this near the Sun would normally have one side eternally facing the Sun. The immense gravity would keep it cemented in that position. But Vulcan isn't a normal planet. While in the fourth dimension, it has a rotation. But when it

comes out, it immediately begins to act normal. It stops rotating, quick. Which means an earthquake."

Spalding didn't question his logic. His voice was rigid with excitement.

"You mean we could use the inertia of that s u d d e n stoppage— , By Heaven!"

He turned back to the controls. Five minutes later, the ship slid to a smooth landing on the high knoll where the *Venture* had cracked up.

THE CREW of the *Venture* came swarming out to greet them. Trask turned to Spalding and spoke. It was agreed that Spalding would go with Trask in the *Venture,* while three of the crew would depart with Spalding's ship.

"You took a chance for me," Spalding said grimly. "I guess I'll take one with you."

Trask called Brille. Brille left the group of men who had surrounded him. He halted for a pugnacious second in front of Trask.

"Well?" he scowled.

"I'm not giving you any orders, Brille. We've got a plan to get the *Venture* out into open space without *kronite.* It's a gamble. It would be better if we had a good engineer in the control room. If you don't want to gamble, detail two men off to go with you and use Spalding's ship. Escape's sure, that way. Understand?"

Brille's eyes flickered. "I get it."

Trask turned and left him, his expression one of revulsion.

Trask himself took over the controls. Down in the engine room, lead cable was feeding from the Holloway vacuum feeder. Power was building. Trask spoke into the engine room tube. Power was released. As if a giant had nudged the ship, its stern bounced upward, the whole ship settling into a new position. Repeated nudges turned the ship in that direction exactly opposite the present direction of rotation of the planet.

In two minutes, Vulcan would stop rotating. A kind of earthquake would ripple around the planet, shaking whole mountains, cities from their bases, loose objects hurtling for miles. It had happened before.

Spalding was holding a stop watch in his hand.

"Sixty seconds!" he called tensely.

Trask spoke into the engineer's tube.

"Aye, aye, cap'n!"

Trask's eyes bulged. *"Brille!"*

"An' who else?" Brille snarled. "What's your orders?"

Even in the tensity of the moment, Trask found himself able to grin with his whole face. "Power lever on Wittenbergs!" he snapped. "Open protonoclast valves, minimum fire."

Brille's voice sounded, repeating the command to his men.

"Forty seconds!" came Spalding's voice.

Trask felt perspiration crawling like ants on his skin.

"Twenty seconds!"

"Ready!" Trask bit the word out.

"Ready," came Brille's strong voice.

"Ten seconds. Nine. Eight. Seven . . ." Spalding's voice droned on tensely. *"One!"*

"Fire!"

Into the proton jets blasted an amount of power far short of that necessary to throw the *Venture* into open space.

And yet the *Venture* was hurled from the high knoll on which she had cracked up, skimmed the surface of the planet with searing velocity, flung herself toward the horizon, and in seconds was hurtling over the gouged mountains!

Trask saw the very scenery change shape. Where before there had been a rocky plateau visibly littered with the refuse of former "earthquakes," there was now, far below, a tumbled mountain range. The *Venture* was flinging through the atmosphere, on a tangent to the surface of the planet. In another second even that changed.

The horizon of the planet widened out to an immense semi-circle, and then disappeared. That could mean but one thing. The *Venture* was in open space, Vulcan and the Sun behind—and Mercury ahead!

Spalding slumped back in his chair in sheer relief. His glance in Trask's direction was warm. "Success all around!" he exclaimed. "Your mis-

sion's completed—and so's mine! But the honor of the discovery of Vulcan will be shared between us. . . ."

SOME two hours later, the ship limping at minimum blast toward Mercury, Spalding's smaller ship ahead, Brille edged into the control room. Corbly was at the controls, Spalding at ships' bay having his hands doctored.

Brille took a stance a few feet distant. He growled, hardly able to meet Trask's eyes, "I felt like a rat, cap'n—an honest-to-God rat. You got brains. And you got guts." He grabbed Trask's readily extended hand, shaking it energetically. "How about a drink when we get to Mercury?"

"Taken," Trask smiled. A glow of pleasure spread comfortably through him as he turned back to the controls.

Police Lieutenant Rod Caquer Pits Himself Against a Fiend Who Plots to Degrade Mankind to the Plane of Robot Slaves in DAYMARE, *a Mystery Novel of the Future by* Fredric Brown *in the Fall Issue of Our Companion Magazine*

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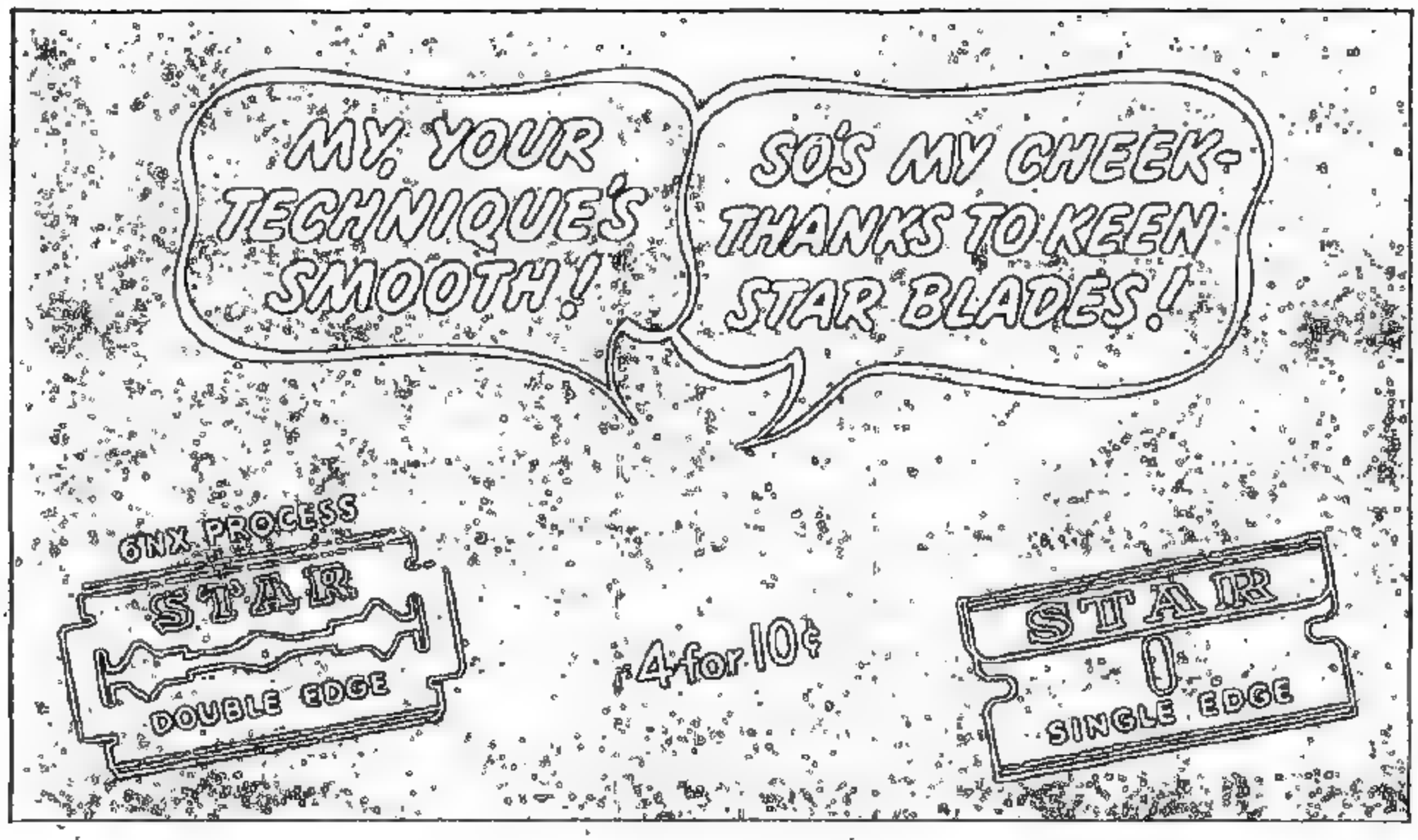


An annihilation beam flashed from Nor'fal's gun.

MUSIC HATH CHARMS

By HENRY KUTTNER

Detective Dill, Crime-Buster of the Twenty-Second Century, Turns Up a Murderer in Sky City, the Planet of Pleasure!

IT STARTED unobtrusively, as many calamities do. Tex Dill, chief of detectives at Sky City—"The Riviera of Space!"—almost decided to ignore the message. It would be safer—both for his job and for himself, if he did. Then he thought better of it.

One never knew. A crime-buster, in the twenty-second century, had to be on his toes. The most trivial incident *might* mean—almost anything!

It was Dill's job to make certain that blackmail, theft and homicide were never allowed to tarnish Sky City's reputation. So he cocked a keen eye again over the message an attendant had brought up to him, and scratched his gray ruff of bristling hair.

"Trouble in the zoo, eh?" he asked the uniformed boy.

"Yes, sir. I dunno about trouble, though." The lad grinned. "Some

kid heaved a brick through the Dracula cage, and the little blood-suckers got out."

Dill's sour, leathery face got sourer. He was in the Maze—the crystal-roofed garden that looked out on space from the dark side of the asteroid—and he had been talking to a pretty red-head who had seemed duly impressed by Dill's position.

Soft music filtered out from the sound-box under the bench. The red-head thoughtfully stared at her toes. Dill chewed his bluish Venusian cigar and said:

"Sorry, lady. Important call. I'll be back pronto."

There was no response. Dill sighed and left the Maze by way of the immense Solar Room, here Red Venable, the latest orchestra leader, was conducting from the dais to an audience drawn from all over the System. Dill scowled at Venable, and got an amused glance in return. Then he was in an elevator, dropping swiftly into the heart of the hollowed-out asteroid.

Sky City, the Riviera of space! Telaudios blurbed its attractions from Venus to Callisto—its artificial gravity and atmosphere, its special accommodations for the inhabitants of every planet, its cuisine by its famous chef, Bertram, its manifold attractions . . . . but never a word about Tex Dill, the guy who kept the petty crooks and gamblers out of Sky City. Bah! They worked him like a dog.

Dill mangled his cigar bitterly.

True, he didn't have to work as hard as he did. But the sour-pussed little detective liked to keep things running smoothly. He really took pride in his job, and preferred to handle everything himself. For one thing, it gave him more reason for grousing.

Now he passed through a corridor, pausing to nod at a uniformed attendant.

"Well?"

"We got the guests out of the zoo, Mr. Dill."

"Sure, sure. But did any of the Draculas get out?"

"No—nothing smaller than a dwarf Martian's registered on the photo-electric detector plates." He gestured toward the walls. "And we've rounded up most of the Draculas with salt, anyway."

"Fair enough," Dill grunted. "Who threw the brick?"

"We don't know. Nobody saw it done. Some kid, probably—there were a lot of them around."

"Mph," said the detective, and went on into the zoo, a big cavern, filled with cages and glassite domes.

It was empty now save for attendants—and, of course, the captive creatures, ranging from tiny marmosets to a Venusian seal-fish in its tank. Here and there were set up gravity-poles—tall rods with discs like dinner plates atop them.

"We salted the discs, Mr. Dill. And there's ten gravities turned on."

FROM nowhere darted a thready, snake-like creature on membranous bat wings. It dived at one of the discs, came down with a thud, and remained unmoving. An attendant reached up with a clasping-rod, hooked the creature, and pulled it free of the induced gravity-field that had held it motionless.

Dill reached for the Dracula, which had curled into a cool, pulsating ball. It had no face—just a mouth. It was rather like the Amazon vampire bat, except that it was reptilian. Indigenous to Venus, it would attack only a sleeping victim. However, while a Dracula could draw off plenty of blood, it would take a dozen of them to kill a human.

"How many still out?" Dill asked.

"Six or seven. We'll catch 'em with the salt."

"Yeah. Keep the zoo closed till they show."

A burly man with a florid, meaty face appeared.

"What the devil are you doing here?" he demanded, glaring at Dill.

It was the curator, Simon Morgansen.

"Just checking up. Got any objection?" Dill's sour face looked sadder than ever.

"Yes," Morgansen said, "I have. Why the devil don't you attend to your own business? You've got your long nose into everything."

Dill grunted.

"Maybe this is my business. I like to see what's going on."

Morgansen turned purple.

"Mr. Fargo!" he howled. "Mr. Fargo! Will you come here a minute, please?"

A neat, dapper man strung on jittery steel wires appeared from behind a cage. Puffing nervously on a cigarette, he approached his gaze darting from one to the other of the two men.

"Here I am. What is it?"

Fargo was director-general of Sky City.

"Him!" Morgansen said, pointing. "I knew he'd come snooping into my business. That's why I wanted you down here! Now look. Some harmless Draculas escape. I'm the curator; that's my affair. But this busybody sticks his oar in. He does it everywhere!"

Fargo rubbed his forehead as though it ached.

"Sure . . . let's go, Dill."

He turned to the door, and the detective followed, with a malevolent glance for Morgansen, who grinned.

In the elevator, Fargo blew out a smoke-wreath. "I've warned you before about these complaints," he said. "Morgansen isn't the only one. You're exceeding your duties, Dill."

"I know my job."

"If you'd only stick to it! Now look! If Bertram finds a spoiled peach in the kitchens, you're down there to analyze it for poison. If a few Draculas escape, you're in the zoo. I can't help feeling that you're being rather a busybody."

"I've gotta keep my eye on things—"

"I can't have you disrupting Sky City," Fargo said irritably. "I've warned you before, Dill. This is final. If I get another complaint, it'll mean demotion."

Dill's face showed no expression, but his eyes flickered betrayingly.

"Understand?" Fargo insisted.

"Yeah," Dill said tonelessly.

As the elevator stopped, Fargo got out, but the detective stayed where he was, chewing his cigar, trying to fight down the tight, choking sensation in his stomach. Demotion. . . .

THE elevator halted automatically at the Maize, and Dill emerged. He was looking oddly old at that moment, his usually straight shoulders slumped, his carriage no longer that of a bantam rooster.

Maybe Fargo was right. Maybe he was a busybody. But—blast it all! He'd always taken pride in his job, always tried to do it right. Possibly he was getting old. . . .

A heavy hand fell on Dill's shoulder, and Red Venable's voice boomed in his ear.

"How's the great dick tonight? Feeling low?"

Dill's gray ruff of hair bristled furiously.

"Heck, no. I'm just sick of Sky City. I dunno why I stay on here. I could get me a job at the Marspole Riviera like that."

Venable's boyishly handsome face twisted into a grin.

"Not you. Sky City's got in your blood. I can understand that, too. I've been here only a few weeks, and I hate to think of leaving."

They moved toward one of the benches.

Venable sank down with a grunt and exclaimed:

"Whew, I'm tired."

"Tired? You've got a soft berth here. If I could wiggle a baton and blow a Callistan *pifah,* I wouldn't have to—"

Dill stopped suddenly.

The orchestra leader flicked dust from his immaculate cuff.

"Rockets to you, flatfoot. I've been up since four a. m., Earth time. This is the first chance I've had all day to relax. And in ten minutes I've got to go back and take over the baton from Joe. Joe's good, though. Listen to that arpeggio!"

He tilted his head, nodding in time to the music that came from one of the concealed amplifiers that were scattered all over the Maze.

"If you call that work, you're spacedizzy," Dill growled.

Venable looked at the detective.

"Listen. An orchestra leader lasts just so long. Once he's on the skids, he's through. Not much chance of a come-back. And d'you know how he

manages to stay on top? By working his head off, that's how."

"Mph."

"What about orchestrations? I'm known for novel effects and intricate rhythms, for using the instruments of practically all the planets. My drummer's the only boy sunside of Pluto who can handle the Plutonian triple-snares. D'you think it's easy to work that off-chord pounding into a piece?

"Say, living in the twenty-second century's no joke. Back two hundred years, all you had to know was Terrestrial instruments. Those old boys, Whiteman and Goodman and the rest, had it easy. Me, I've gotta know all the string, wind, percussion, and off-side instruments from Mercury to Pluto. And inside out, too!"

He sighed.

"Tonight I'm premiering *Meteor Moan*. Had to work in instrumentals from just about every planet to show the path of a meteor from outside to the Sun. It's plenty different, but how should I know whether or not it'll click? Still, it's got a finale like the *Bolero*. . . ."

He pondered.

"So I've got it easy! If I had your job, now—you've got every trick of science and deduction at your elbow. The minute there's a murder, you pump truth-serum into the suspects—"

"Demotion!" Dill said under his breath, but Venable didn't hear.

The detective snapped:

"Ever hear of the Bill of Rights? Sure, once you've got your suspects, you can shoot scopolamin into 'em, but you need plenty of evidence first—enough to hold up in court. 'Reasonable proof and grounds for legal suspicion,' he quoted. That covers a lot of territory.

"Besides, it's my job to stop crimes from happening in Sky City. All sorts of sharpers try to edge in here. You'd be surprised at some of the con games I've dug up. There was one guy who'd fixed up a deck of cards so the pips were opaque to Roentgen rays—and he had an artificial hand, with an x-ray machine built into it!"

"Still—"

DILL wished he could make someone understand his feelings. "Modern crime is like the Maze," he argued. He gestured at the great maze around them, under its transparent space-dome, a labyrinth of shoulder-high, thick hedges.

"Criminals have kept up with science. There aren't any more simple crimes. If a man wants to commit murder, he knows he can't afford to have suspicion directed at him. So—the minute I notice anything just the least bit unusual, I've got to investigate all the possibilities."

"Well, I've got to get back to the job," Venable said, rising. "Want to watch?"

"Might as well," Dill agreed glumly, and followed Venable to the entrance of the immense Solar Room. There the younger man paused, catching the eye of the head waiter, who came quickly toward them.

"Hi, Rex. Any Ganymedeans here tonight?"

"Yes—two big shots who just blew in, and one from Callisto. Wait a minute, though. The big shots just checked out. They went to the Casino. But the Gany-Callistan's still here."

"The devil," Venable said. "That messes things up."

Dill glanced at him.

"How come?"

"Ganymedeans are neuropaths; you know that. Abnormally sensitive to certain colors and sounds. Trouble is, there's a passage in my new piece—*Meteor Moan*—that plays the devil with Ganymedeans. Second octave above high C. It gives 'em the gasping raspies."

"Yeah, I remember," the detective nodded. "Gonna play something else, then?"

Venable shook his head.

"Nope. I made two versions of *Meteor-Moan*—one of 'em without the high passage, in case Ganymedeans were present. It isn't as good, though. Still—"

He sighed, nodded to Dill, and went to the dais, amid a scattering of handclaps, some of them transmitted through amplifiers set in the glassite domes under which certain planetary types were dining, in artificial atmos-

phere and gravity.

Dill turned to the head waiter.

"Where's that Gany-Callistan?"

"Over there. He's a third generation migrate. His family's been on Callisto for decades—swamp farmers. Hek Daddabi is the name. Won some contest that gave him a free trip to Sky City. Looks enchanted, doesn't he?"

That was true. The mild-faced little Ganymedean, with his floppy spaniel ears and his button of a nose set over a sad little pouting mouth, seemed in transports. All his life, probably, he had lived in poverty—and now this! Sky City! His fat body quivered excitedly. All Ganymedeans got fat once they had left their native world.

Dill went out. He felt tired and empty. Usually he went on a routine check-up of Sky City at this time, but tonight, remembering his interview with Tom Fargo, he hesitated. A snooping busybody. . . .

Well, his presence was justified in the Casino, anyway. He wandered about among the gaming tables, looking sour and grim, mangling his cigar. No sharpers were present tonight. Twice he got reports that, an hour ago, would have meant immediate investigation—but he could tell that they weren't serious matters. A broken oxygen-line, a Venusian who'd brought in a case of *coryza* . . . If he investigated, he'd be meddling with matters outside his province.

THEN a third message came. Dill's teeth clamped down on his cigar. He cursed softly under his breath, glared at the attendant who had brought the note, and felt a warning bell clang within his brain. Always the sound of that bell had meant danger. Dill believed in his hunches.

"In the infirmary, eh?"

"Yes, sir."

The infirmary was in charge of a martinet who hotly resented interference. But—so what? Dill knew very well that Dr. Amos Gallegher would raise hob if he intruded. He said, "Nuts!" and loped past the attendant to the nearest elevator.

In the emergency ward two Ganymedeans were on operating tables, unconscious and haggard. Dill stared at them, recognizing Vagga den Zony and Baron ta Nor'fal, partner-owners of Airflakes, a famous Ganymedean food company. Den Zony was rather like a Dore conception of a devil, except for his spaniel ears and his rimless spectacles. His thin lips quivered continually—a symptom of the neuropath. Jeweled rings covered his tentacular fingers.

Baron ta Nor'fal had a thick beard of striped colors, and wore a plain black uniform-suit, which interns were removing. His only decoration was a single huge diamond set in a circlet around his forehead.

Dr. Gallegher, a big, white-faced, ice-eyed man lumbered forward.

"You here again, Dill? Fargo promised me you'd keep your nose out of my offices!"

"I'm just checking up," Dill said, holding his temper in leash. "Nothing wrong in that, is there?"

"Yes!" Gallegher exploded. "I don't need you to tell me my business! This case is simple—some escaped Draculas got into the Ganymedeans' suite and vampirized those two. A transfusion will take care of matters. Now you've got your information, so get out!"

"Sorry," Dill said. "I think I'll stick around a bit longer."

Gallegher turned beet-purple.

"All right," he said softly. "I'll see Fargo about this." Without another word he turned back to an intern. "Let's see that card."

"Yes, Doctor. Vagga den Zony—Blood Type X-4. Baron ta Nor-fal—Type D."

Gallegher chewed his thick lips.

"X-4? Where can we get X-4? One of the rarest types in the System. Plenty of Type D's on tap for ta Nor'fal, but X-4 coagulates in any medium."

The intern looked worried.

"Shall I dig out the D type?"

"Yes. For ta Nor'fal. Start the transfusion. I suppose we'll have to use saline and blood plasma injection on the other one."

Dill moved back into a corner, his keen eyes watchful. He sensed some-

thing vaguely amiss—just what, he couldn't say. Of course, this meant his finish. Fargo's warning had been definite. If Dill interfered again—

But a man had to do his job, and do it as well as he could. An accident like this, trivial as it seemed, merited investigation. That was Dill's theory. Even though he might be all wrong in this case, the principle was right.

He *had* to stay and watch — even though it meant demotion.

Dr. Gallegher let out a yelp.

"Say! That other Ganymedean—the Callistan immigrant! Isn't he X-4?"

"Yes, sir!" the intern said, flourishing another card. "He is! Shall I—"

"Get him! See if he'll consent to a transfusion. What luck! He's certainly the only X-4 type in Sky City, besides den Zony."

DILL snatched the card from the intern as the latter hurried past, and caught the tail-end of a malignant glare from Gallegher. But the doctor was too busy now to argue. Dill studied the report. Hek Daddabi, the little swamp farmer, was a healthy specimen. The medical report, required of guests at Sky City, showed that.

Presently Hek Daddabi arrived, looking more than ever like a spaniel. His soft, slurring voice was inquiring.

"Have I done something wrong, gentlemen? I fear I am doomed to run into trouble. Always our family is involved in it. My grandfather had to leave Ganymede to save his life, and bad luck has dogged us ever since. From the frying-pan into the fire, as you say. I will leave immediately—I should not have come. I am merely a poor swamp-farmer—"

"Hold on," Gallegher said. "We want to ask a favor of you, Mr. Daddabi."

"Mister?" The creature's sad eyes overflowed. "You call me Mister? Oh, you are too kind."

Gallegher explained the set-up, and Hek Daddabi's jaw dropped. He turned to stare at the motionless figures on the operating tables.

"Baron ta Nor'fal and Vagga den Zony? I would give my heart's blood for them!"

"Friends of yours?"

"Listen," Hek Daddabi said excitedly. "I am a poor swamp farmer. I work all the time. Then Airflakes has a contest. You send in six labels and an essay. I did that. I won. I won the eighth prize, which was a trip to Sky City, all expenses paid. Wonderful! And you see those two men—" He pointed to the unconscious Ganymedeans "They own Airflakes."

Dill was scowling as Gallegher and the interns went to work. He collared one of the latter.

"How long will this take?"

"Not long. We've got some new tricks here. Stimulant rays. All three of these lads will be back in circulation in an hour. We pump hormones into the blood-stream during the transfusion."

The intern fled as Gallegher roared at him. Dill turned to the door to pause at the doctor's bark.

"I'll see that Fargo learns about your interference—"

"Yeah," Dill said, and went away. He had an idea.

In his own quarters, he tuned in on the teleradio. It took some time to get what he wanted, and finally he resorted to the playback.

"News synopsis from Ganymede. The war between Matorna and South Gern is still raging, both robot armies at a standstill. Mayor Tann of Orluz collapsed today of heart failure, and is near death. The Red Plague is sweeping southward from the pole, decimating wild *lupinas*, animals similar to the Terrestrial rabbit. Luckily, the Plague is no longer deadly to Ganymedeans, because of the natural immunity gained in the last two generations. The gambling spaceship *White-Sky* has been impounded by officials. Love nest raided in—"

Dill mangled his cigar. Finally he put through a space-cable to Callisto, marking it CQD, which meant Urgent capitalized and italicized. CQD police calls took precedence over everything else but space patrol messages.

AN AUDIPHONE buzzed. "Mr. Fargo calling Mr. Dill. Mr. Fargo calling—"

Dill didn't answer it. He knew

what Fargo wanted! And, as yet, he didn't have enough evidence to justify a scopolamin test.

Not that he'd need it. Knowing the Ganymedean psychology as he did, Dill realized that a Ganymedean criminal, confronted with fatal evidence, would probably break down and confess. Unfortunately, the psychology was tagged "manic-depressive," and the Ganymedean might possibly go berserk.

Dill touched the gun at his side, hidden under a well-fitting, trim blue-black coat.

But he couldn't let Fargo interfere —not yet. That would be fatal.

By this time Dill was convinced that a crime had been committed in Sky City, and he needed only one thing to confirm it. Half an hour later he got that evidence. The tele-audio buzzed. Dill jumped for it.

"Yeah? They said what? The pathology—eh? Died of the effects, did he? Swell! Thanks for the CQD Service."

He turned to the audiophone.

"This is Dill—Tex Dill. Where are the Ganymedeans who just got blood transfusions?"

"They are in the Maze, sir. Mr. Fargo wishes to talk to you."

"I'll see him later," Dill snapped, and dived for the door.

The elevator that took him up through Sky City's levels moved far too slowly to suit him. When the door opened, Dill plunged out, caromed off a guest, and headed for the Maze.

At the entrance he hesitated, trying to locate the Ganymedeans. Though the hedges were only shoulder high, there was no sign of ta Nor'fal or den Zony. They were probably seated on one of the benches. Soft music, piped from the Solar Room, sounded incongruous to Dill's ears.

Someone gripped his arm hard.

"Dill! What the devil's the idea."

It was Fargo, his thin face flushed. Dill tried to pull away.

"Not now, Mr. Fargo. I'm cleaning up something important. It's—"

The manager's grip tightened.

"It can wait. Dr. Gallegher said you came into the hospital and tried to tell him how to run his business. I've been chasing you all over Sky City. What's the idea?"

Dill chewed his cigar.

"I'll tell you later. Give me five minutes—"

Fargo's lips twisted.

"If there's anything to tell, do it now. I've had quite enough of your 'investigations'. Dr. Gallegher's complaint was the last straw. You're demoted, Dill. I'm sorry, but it's your own fault."

The detective's figure tensed; two red spots showed above his cheekbones.

"Okay," he said, after a moment. "So I'm demoted. Now let me go. I've a job to do."

"You're relieved of active duty. I think you're crazy!"

"For Pete's sake, listen!" Dill shouted. "There's a homicidal Ganymedean here in the Maze, and he's already tried to commit murder! I want to catch him before there's more trouble. You know how unstable Ganymedeans are emotionally. He may go haywire!"

Fargo stared.

"What?"

WITH furious patience, Dill plunged on.

"Six Draculas were smuggled out of the zoo tonight. The photoelectric plates showed nothing that small had gone through the foyer, so I figured somebody had carried the creatures out with him. Under his coat, I guess, in a cage he'd made for the purpose. That's why Vagga den Zony and Baron ta Nor'fal were vampirized—they were let loose in the Ganymedean suite!"

"What in Space are you talking about?" Faro demanded.

"Murder." Dill snarled. "I've got all the evidence. I sent a CQD call to Callisto, and I know who the murderer is. So—"

The hedge beside the two men shook violently. There was a sudden, skirling scream, and a growl of vicious fury. The blue flash of an annihilation beam lanced out from beyond the hedge, swung in an arc, and faded. Racing footsteps pattered swiftly.

Dill's face went gray.

"Jumping Jupiter!" he whispered. "They heard us! They were on the other side of the hedge!"

He sprang to the left, the astonished Fargo at his heels, and rounded a leafy parapet just in time to see the two Ganymedeans, Vagga den Zony and Baron ta Nor'fal, sprinting away.

In the dim light it was impossible to tell them apart, or which pursued the other. But from the second figure a blue ray flashed, hastily aimed, as the fleeing Ganymedeans dodged around a hedge just in time.

The two were lost in the Maze. Dill ran forward, and ducked to avoid a slash of the deadly beam. He drew his gun, hesitating.

"The Maze is full of guests," he said. "I don't dare—"

Fargo was pale.

"He's trying to murder . . . Dill, we've got to stop this!"

Dill's cigar was in tatters.

"What did you make me spill the works to you for? he chattered. He overheard me, knew the jig was up, and went kill-crazy! That's a Ganymedean for you. Screwy neuropaths. . . . They're both keeping down now, lower than the hedges. Playing blind man's buff. With that annihilation ray!"

Fargo pointed.

"All the entrances and exits to the Maze are up on terraces. They can't get out without being seen."

Both men stared at the hedges. There was no sign of life. But somewhere there a killer was stalking his prey—and there were the harmless, unsuspecting guests of Sky City scattered all through the Maze.

Fargo groaned.

"Let's go after them. It's the only thing to do."

"If the killer sees us, he'll use his ray again," Dill pointed out. "Neurotic as he is, he might go hog-wild and blast the Maze flat in order to get his victim. We can't take a chance on that."

"But we've got to do something!"

There was a silence, broken only by the music of Red Venable, floating up from a hundred amplifiers.

"I've got it!" Dill said and whirled. He dashed into the Solar Room, spoke briefly and crisply to Venable, and then returned. Fargo looked at him with worried inquiry.

"Well?"

"Wait. Get ready."

THE music broke off. It started again, quite different this time. And abruptly, from the depths of the Maze, came a yowling shriek of pure anguish.

Then another, louder if anything.

Dill relaxed.

"That does it," he said. "Come on!"

"But—"

The detective led the way through the hedges.

"I got Venable to play a passage in *Meteor Moan*. He's running it over and over. Tonight he told me he'd left it out, because Ganymedeans were present. It—uh—it's in the second octave above high C, and it gives Ganymedeans the wailing willies. There's no hurry now. Listen to those yells!"

They came in sight of Vagga den Zony, his spectacles gone, hands pressed to his ears, and his face twisted in pain. Dill dragged Fargo past the howling Ganymedean.

"No time for him now. We want the Baron."

They found the Baron, a minute or so later, seated in the middle of a path, trying to stop his ears, and kicking out like a beached fish. He was yelling miserably. At sight of the Earthmen, he made frantic snatch for the ray-projector beside him, but Dill leaped forward and kicked the weapon away. Then he snapped handcuffs on the Ganymedean's skinny wrists.

"Okay," he said. "Now tell Red it's time to change his tune."

Fargo gulped and ran off.

After a few moments the music altered, drifting into a dreamy waltz. The screams of the Ganymedeans subsided. Fargo came back, Vagga den Zony behind him.

"He tried to kill me!" the latter gasped. "He—he—"

"Sure," Dill said soothingly. "It's okay now, though. We'll keep the Baron locked up and feed him scopolamin till he records a confession. You'd better go and lie down, Mr. den

Zony. And take a sedative."

The Ganymedean staggered off, supported by a hastily-summoned attendant, while another took charge of Baron ta Nor'fal, who was mouthing searing and cryptic oaths in his own language.

Fargo sank down on a bench and then lit a cigarette with trembling fingers.

"It's all over now," Dill said soothingly. "No accidents, no scandal. But it turned out to be a close shave, at that."

FARGO gratefully sucked smoke into his lungs.

"I . . . yeah. What's it all about? Here. Sit down and spill it!"

The detective obeyed.

"I told you how I figured the Draculas were smuggled into the Ganymedeans' apartment. Well, the Baron wanted to make a blood transfusion necessary. For den Zony, that is. He let the Draculas attack him too, so suspicion wouldn't be pointed his way."

"A transfusion?"

"Vagga den Zony's blood type was X-4—something no hospital can keep longer than a few hours. The Baron planned it all in advance. He and den Zony own Airflakes, you know. When they held their contest, ta Nor'fal checked up and found somebody who had blood type X-4—and something else, too. He arranged to let little Hek Daddabi, the Callistan swamp farmer, win the trip to Sky City. And he made sure he and den Zony would be here at the same time. The reason? So den Zony would get a transfusion of Daddabi's blood."

"But Daddabi's healthy," Fargo objected. "Dr. Gallegher made certain of that before he performed the transfusion."

"The Red Plague," Dill said. "That's the answer. Worse than the old Black Plague on Earth. Three generations ago Ganymede was still periodically swept by the Red Plague. It killed Ganymedeans like mosquitoes in chlorine. The race built up natural immunity, and after that the Plague killed only a few animals. But Hek Daddabi's grandfather left Ganymede to escape the Red Plague. He emigrated to Callisto, where the virus couldn't exist. That was what my spacewire was about."

Fargo was beginning to understand.

"You mean—"

"Daddabi's blood had a hereditary weakness, and the Baron took pains to find that out. Being on Callisto, Daddabi's family, away from the virus, didn't build up immunity. So if Daddabi went back to Ganymede and got a dose of the Red Plague, he'd die within a few hours. Two and two make four.

"The Baron planned to get Vagga den Zony pumped full of Daddabi's blood—which hasn't any immunity to the Plague—and the Plague's raging on Ganymede now. It's only killing animals there, but once den Zony goes back, he won't last long. But now that we know the answer, we can give den Zony artificial immunity by antitoxins. After a week here, he'll be immunized again."

"Crawling comets!" Fargo gulped. "What a devil! But—why did he do it? He must have had some kind of a motive."

"I checked up on that, too. Vagga den Zony insisted that both he and the Baron turn most of the profits back into the Airflakes business, and den Zony owned fifty-one per cent. of the stock. The motive was just greed. As usual."

Dill tossed his cigar away.

"So that wraps it up. Sorry I had to stick my nose into the zoo and the hospital, but—well!" He shruged. "I'm catching the next transport back to Earth."

"What?" Fargo jumped up.

Before Dill could answer, two men appeared around a hedge. They were Morgansen, the curator of the zoo, and Dr. Gallegher. Their eyes were gleaming triumphantly at sight of their quarry.

"I see you found him, Mr. Fargo," Gallegher grinned.

"We don't want to be too hard on Dill," Morgansen said. "After all, he's pretty old. But I think an apology—"

"An apology," Fargo said softly. "That's an idea. Yes, I think an apology's necessary."

DOCTOR GALLEGHER smirked. The smirk vanished as Fargo continued.

"You know your own business best, Dill. If it takes you into the hospital, the zoo, or my private office, that's okay—you've got *carte blanche* from now on. I should have realized that before. Anyway—my apologies!"

Morgansen gobbled and turned turkey-red.

"But—but—but"

Dr. Gallegher reared back.

"*What?* What are you saying?"

Fargo grinned.

"I've got to make out a report. See you later, Dill. Morgansen and Gallegher have something to say to you, I'm sure, so I'll run along."

The doctor gasped,

"Do you expect me to—to *apologize* —to this—"

"Suit yourself," Fargo said over his shoulder. "It's up to you whether you want to keep your jobs or not."

He vanished. Dill found a fresh cigar, stuck it in his mouth, and waited.

Gallegher exchanged a long, baffled glance with Morgansen. Then, as though the words caused him excruciating agony, he glared at Dill and muttered something that might have been an apology. Morgansen echoed him.

The two men, looking ready to explode, whirled and stamped out of the Maze. Dill chuckled.

A voice behind him spoke.

"Oh, I think you're wonderful, Mr. Dill. I heard it all."

He turned. It was the pretty redhead who had been talking to him when the message had first come from the zoo.

Her smile held hero-worship.

"I've been waiting," she said. "You said you'd be back. Imagine being a detective—here!"

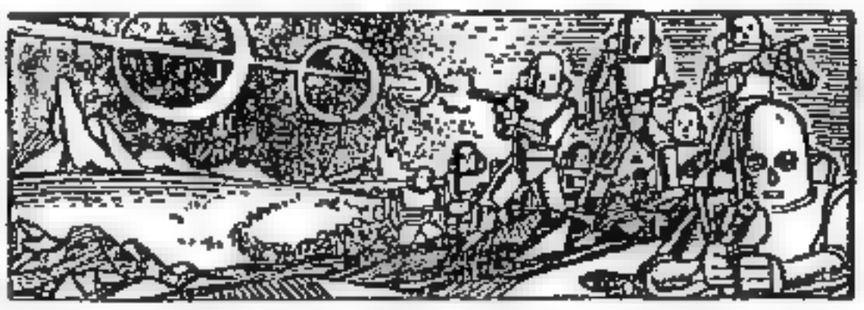
Dill sank down on the bench beside her.

"*Mph,*" he grunted, his face souring. "What's your line?"

"I'm a school-teacher. On my vacation."

"Yeah?" growled Tex Dill, clamping down viciously on the cigar. "Listen, you got it easy. I'd trade places with you in a minute. Me, now—"

He was off!



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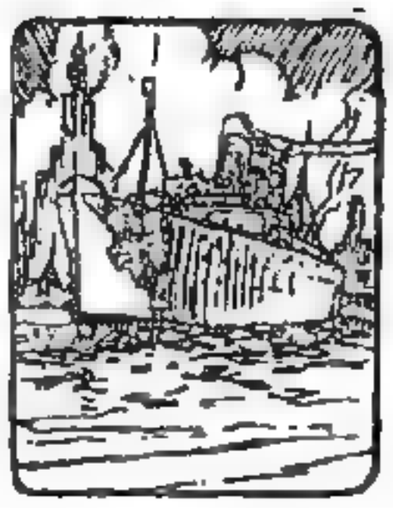
This STARTLING WAR

News and Notes from the Science Front



EVER LEVEL LANDING DECK FOR CARRIERS—Elimination of the carrier landing deck that won't stay put is the aim of a compensating system invented by Carl M. Zoll of Dundalk, Maryland. Instead of building the deck solidly on top of the carrier's hull, Mr. Zoll proposes to mount it on the upper ends of a series of plungers or piston-rods operating out of hydropneumatic cylinders deep within the hull.

When the vessel rolls or pitches, a series of automatic pumps cause the plungers to drop on the parts of the ship that are rising and to rise on the parts that are going down. While the inventor does not mention it, one of the advantages of his system is to insure a steady flight deck would be a steady gun platform for the defensive armament as well.

PEROXIDE FOR SUBS, NOT FOR BLONDES—*Persistent rumors hint that the latest Nazi U-boats run submerged on their diesel surface engines which are supplied from tanks of liquid oxygen when necessary. A U.S. patent on a propulsion system of this type has been obtained by Swedish inventor Alf Lysholm of Stockholm.*

Mr. Lysholm's plant varies from the reported German one in that he plans to get oxygen from a liquid carrying medium like hydrogen peroxide rather than from the often dangerous liquid oxygen. The peroxide solution would, of course, be used straight rather than in the exceedingly diluted form that created the platinum blonde.

SCOTSMAN INVENTS HELICOPTER GADGET—An active Scottish worker in the field of aircraft development, Cyril George Pullin, has discovered an improvement in dual roll helicopters which the Autogiro Company of America is working on. The new machine is provided with variable-pitch rotor blades, whose angle is systematically controlled so that momentary changes in motor speed to not cause fluctuations in the rate of rotor movement.

MACHINE AIDS SMOOTH TRIGGER WORK—*Paul Fidelman of New York has just patented a small attachment for the trigger of a rifle with which the raw recruit learns the difficult art of squeezing the trigger smoothly and slowly instead of plucking at it like the string of a harp.*

A small metal slide behind the trigger is part of an electric circuit that keeps a buzzer sounding. In its middle is a piece of non-conducting material that interrupts the circuit briefly during the critical moment when the hammer falls. If the trigger is jerked, there is virtually no break in the buzz, but when it is squeezed properly, there is an appreciable pause. Thus the pupil and his instructor can keep tabs on his progress.

SMASH THAT 7th COLUMN—As manpower needs to win the war have become acute, the science of safety engineering has come into its own as an effective weapon against an unseen monster even more powerful than the gremlins. This monster, which is powerful enough to cripple armed forces and industry, is the towering structure of the "7th Column," the column of carelessness which has been ferretted out by the Liberty Mutual Insurance Company as one of its activities in helping to win the war.

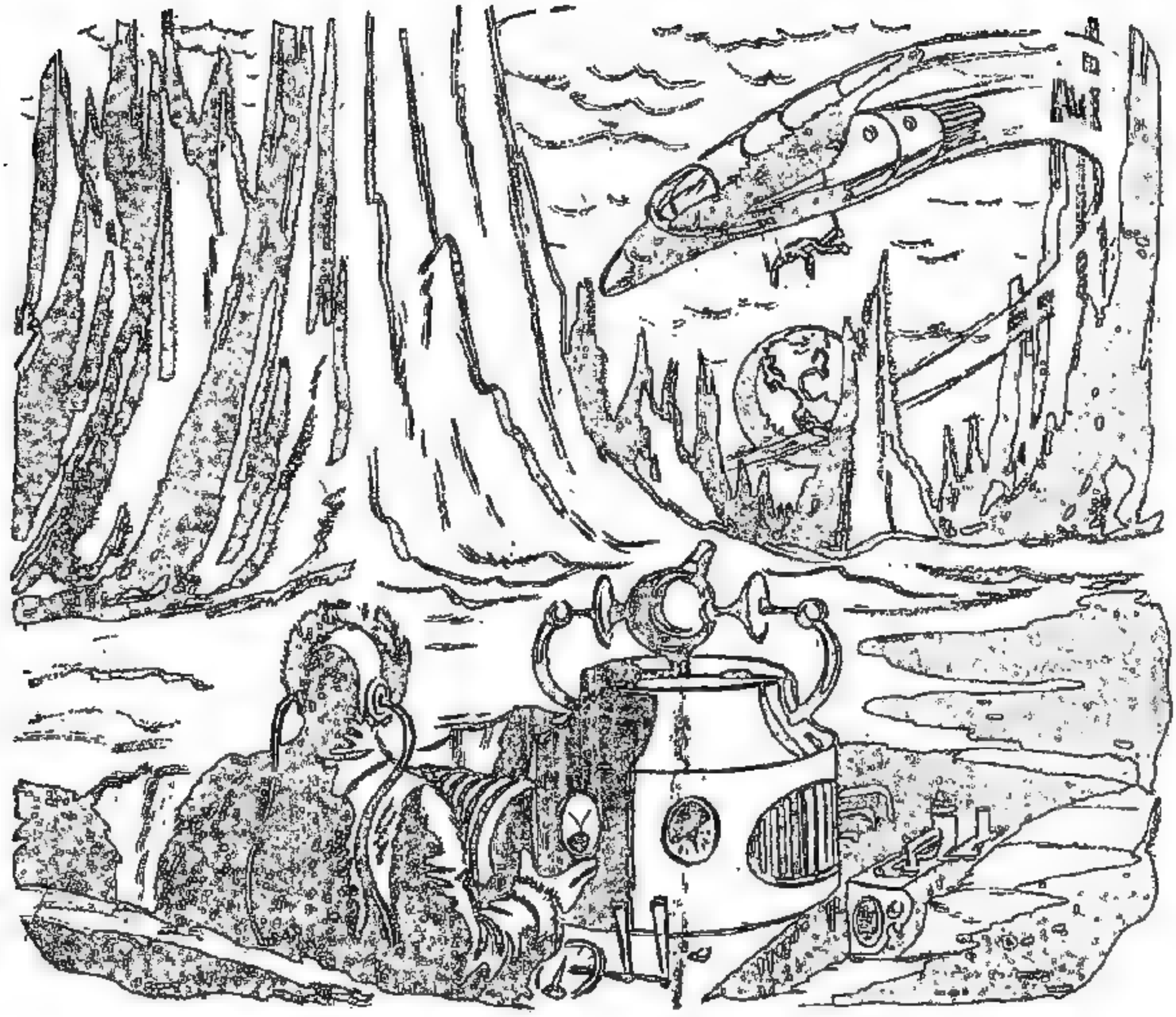
The problem of smashing the "7th Column" is being given constant attention by safety engineers. Their work conserves hundreds of thousands of man hours which otherwise would have been lost to war production through needless accidents in factories and absenteeism through accidents in the home.

In one instance, a munitions plant worker accidentally dropped a shell she was working on. The shell exploded and seriously wounded several workers. Safety engineers of Prudential went to work and came back with a plan whereby shell production was speeded up and accidental firing was eliminated.

NEW AND SIMPLIFIED FIRE CONTROL INSTRUMENT—*A simplified fire control instrument, designed for one-man operation in short-range ack-ack work, is the invention of Joseph F. Joy of Claremont, New Hampshire. It is built to look like a gun and is aimed like one. Mounted on a pedestal near the actual gun position, it is intended to give quick-firing data to the machine-guns and pom-poms defending ground installations against strafing and low-level bombing planes.*

CANADIAN BATTLE BELT AIDS TREATMENT OF WOUNDED—A battle belt, designed by Surgeon Lieutenant-Commander C. M. Oake of the Royal Canadian Navy is simplifying treatment of men wounded at their stations. As medical essentials are all too frequently lost in the confusion and darkness of naval action, he has devised a panel holder of plasticized material which is worn around the waist and holds certain vital instruments and medicines that may be needed instantly.

The five pockets of the belt contain syrettes (small tubes for administering morphine), wound labels and skin pencil for marking the kind and time of treatment, scissors and a bistoury (a long surgical knife), a vial of morphine and an emergency kit for treatment of eye injuries. Clamped to the outside of the belt are hemostats for controlling hemorrhage, a length of rubber tubing, four cartridges of sulfathiazole crystals and a flashlight with an adjustable beam.



In awe-stricken fascination I watched the Urania

THE SIDEREAL TIME-BOMB

By STANTON A. COBLENTZ

A Space-Traveler Struggles Against the Grim Menace Presented by the Vast Explosive Storehouse of a Vanished Race!

THE end of the world was fast approaching. It was to occur at precisely 5:13, Eastern Standard Time, on the morning of July 14, 1959. Astronomers throughout the earth had scrupulously checked and rechecked their calculations, and agreed that there was room for not even a second's margin of error.

The dead, dark body which they had been watching for fifteen years, and which had swung cometlike from outer space to be caught in the sun's field of gravity and to curve about it in a long ellipse, would never complete its second revolution about the Solar center. Already it had made one full journey on its new orbit, which had taken it on a seven-year swing two-thirds of the way to Jupiter. And it was on its second return trip from the sun that the catastrophe would occur.

The new planet—Orcus it was

called, because of its dark appearance —was about the size of the Planet Mars. It was of a density which was little more than half of that of Earth. Its surface, incessantly wrapped in dense steamy clouds, defied close study.

But such heavy clouds, on so small a planet, showed that it was in that comparatively early stage of evolution in which it had not yet lost most of its original atmosphere. How it had become a solitary traveler in space was a matter for speculation. It was assumed that it had been blown from its own sun in a cosmic cataclysm.

This much, in any event, was certain — on July 14, 1959, its career would be ended by another cataclysm. Swinging away from the sun at more than nineteen miles a second, it would approach the intersection of its orbit with that of Earth, which would be a mere half million miles away.

The mutual gravity of the two spheres would more than bridge the gap. But at 5:13 A. M. Orcus would strike not Earth itself, but its partner, the Moon, which would intrude between as a sort of buffer.

Whether anything would be left of Earth was a matter for conjecture. No man would know the results, since all life on this Planet would be annihilated by the searing heat of the collision. The seas would boil; the rocks would turn incandescent, and melt; forests and cities would be shriveled like wisps of paper; the very continents would go up in vapor and flame.

WITH the first impact of the news, in the winter of 1953, the world was stunned. The Swedish astro-physicist, Hjalmar Swensen, made the announcement. But despite his preeminent reputation, the information was not taken seriously until Swenson's computations had been confirmed by the scientists of half a dozen leading observatories.

Yet even after incredulity had given place to a forced belief, men did not utterly lose hope. They persisted in holding that some way out of the dilemma would be found. Only students of science accepted as truth the assurance that positively nothing could be done, that it was futile to attempt to lift a hand to avert the disaster.

Certainly, there was no ground for disputing this grim contention, for nothing is more irrevocable than the law of astronomy. Nevertheless it came to me, in July of 1958—one year before the impending day of doom—that a pathway of escape might be found.

I know this was presumptuous of me. For I, Rodney Bland, airplane designer and specialist in high-combustion engines, had no more than an amateur's knowledge of astronomy. But after eleven years of study and experimentation, I had perfected my first working model of the Astro-Ray Space Car, and that invention put the great idea into my head.

The Astro-Ray Space Car, I should briefly explain, had solved the main difficulties of interplanetary travel. In particular, it had made possible the automatic guidance of the space vehicle from the earth. A powerful new ray of my discovery—the Astro-Ray, I called it—could be focused on any target within four hundred million miles in such a way as to set the car unerringly on the desired course. Once started for the first few hundred thousand miles, it would need no further guidance.

Originally I had thought of using it for an expedition to Jupiter or Mars. Now that Orcus was the hub of scientific curiosity, why not make this planet my first goal? Was it not possible that, once I had reached this globe, I could find some way of averting the threatened extinction of Earth?

"Mad, utterly mad!" was the verdict of Walt McTavish, my protegé and chief laboratory assistant.

But I did not take his objections too seriously.

For Walt of late had got into the habit of ridiculing everything I proposed—ever since, in fact, I had introduced him to Betty Reynolds, and he had fallen for that flaxen-haired young beauty quite as violently as I had done.

Had Walt not been a friend of years' standing, had he not been a

clever, invaluable mechanic, and had I not been confident of my standing with Betty I would have parted company with him long before. As it was, I merely laughed at his gibes as he remarked:

"Of all the crazy ideas, Roddy, if this Orcus notion doesn't take the cake I'm the stepson of a lizard!"

"Then you're sure the stepson of a lizard!" I retorted.

"Couldn't get me to go with you if you gave me that whole Orcus of yours!" he declared, with a defiant toss of his overlong crinkly red hair.

"No one's asking you to go!" I snapped.

NEVERTHELESS, it had been agreed long before that he was to accompany me on my maiden interplanetary flight. And when our spaceship, the *Urania*, took to the sky one late July evening from the airport at Bristol, Long Island, Walt was the second occupant of the craft.

Betty had been directly responsible for that. One day, several weeks before the flight was to begin, she came to the laboratory just before closing time to keep an evening appointment with me. Walt was there.

"Well, getting ready for your flight, Mr. McTavish?" she asked him, after they had exchanged one or two bantering remarks.

"Flight? Not for me, Miss Reynolds! I leave such fool risks for Roddy."

With an impetuous toss of her beautiful long locks, Betty exclaimed:

"So! Then you're afraid of taking risks, Mr. McTavish? And call a man a fool for acting like a man?"

That was all, but it was enough for Walt.

"I'm sorry, Miss Reynolds," he apologized, suavely. "Better not take my little jokes so seriously."

But I was not greatly surprised when, a day or two later, he announced his desire to accompany me on my flight.

I cannot say, however, that I was altogether pleased at his decision, for he proved to be an irritating companion. During the entire sixty-five-million-mile flight to Orcus, he was like a man who carries a chip on his shoulder—particularly when, by any chance, the conversation touched upon Betty. Then, seeing the peculiar wry twist he would give those pale, thinly moustached lips of his, I was uncomfortable about his rivalry.

It was on the thirty-fifth day of our flight that we touched the atmosphere of Orcus. Gray and forbidding, the Planet lay beneath us, draped in long mottled banners of cloud that precluded any view of its surface. There was nothing to do but plunge downward, though at greatly reduced speed, And it was luck rather than good sense that saved us from a crash landing on a bald coppery peak projecting above a furrowed plain, granite-hued except for occasional white streaks and ribbons of what we took to be ice.

Had we so much as grazed the peak —as I was later to learn—that would have been the end of our story. But avoiding this disaster, we spiraled down to the plain, and, thanks to our emergency landing gear, rattled to a halt just in time to avoid being engulfed in a spidery black ravine.

"This planet sure isn't anything worth writing home about!" muttered McTavish, with a displeased smile toward the bare, unvegetated desert.

"Should be giving thanks we got here with our skins whole!" I growled, and proceeded to take samples of the air before daring to throw open the pneumatic doors.

To my delight, I found that the atmosphere was composed nearly twenty-five per cent of oxygen, with the addition of various inert gasses and considerable nitrogen.

"Boy!" I exclaimed. "It's breathable!"

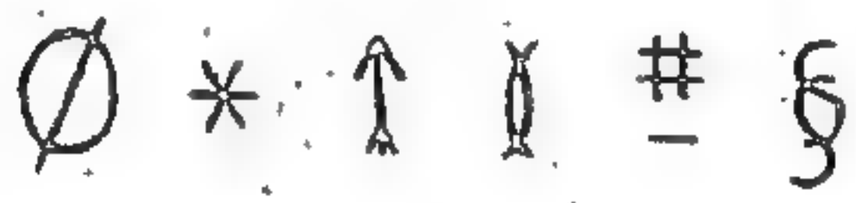
Without a word, McTavish was fastening on his electrically warmed fur coat. We had not taken time to test the air temperature, but we knew it would be much too low for comfort.

AS a matter of fact, it was fully as cold as Laborador in mid-winter Yet there was something exhilarating about being outdoors. Orcus' small size and density and consequently slight gravitational pull made it possible to hop about, literally, like kan-

garoos. It was some time before we could adjust our lungs to the light air, which was like that on a high mountain peak of the earth. But we were soon better adapted to Orcus than we had any expectation of becoming.

As far as we ranged during our first few days—and we went fifteen or twenty miles on all sides of the space-car—we were able to discover no living thing. One curious observation we did make. Here and there were tremendous rectangles of a crumbly, copper-colored substance which we named Redstone—rectangles cut with the precision of great bricks, although most of them were half a mile long and several hundred yards deep and wide.

On one or two of these constructions we made out markings—curious rod-long signs like a series of inverted Ws alternating with symbols a little like:



Of course we had not the faintest idea what these might mean, but their extreme regularity, like that of the coppery blocks themselves, showed them to be due to no natural causes.

Quite plainly some gigantic inhabitants of Orcus, in the near or remote past, had carved the rectangles and left their huge inscriptions.

"By glory," muttered McTavish, always just a little superstitious despite his scientific training, "this place is getting a little too spooky for me! I'm for starting back to good old Earth!"

"What for?" I objected. "Here or there, you'll be wiped out next July fourteenth, in any case. That is, unless we stay here long enough to find some saving clues!"

"Saving clues?" Walt laughed scornfully, pointing to one of the white icy patches that took on something of a spectral quality beneath the perpetually gray heavens. "You'll find that just about as soon as you find birds of Paradise chirping in the frost here! Roddy, when are we going to get out?"

"When our provisions run low, and not before," I ruled, disgusted at the way in which he was showing the yellow feather. "And we've enough to last us a month more here."

"A month in perdition!" growled McTavish. "This cursed Orcus is a blasted sight too well named!"

Squinting out of those greenish-gray eyes of his, he cast me a look so intense, so filled with fury that he reminded me of an animal trapped. Mentally I made note that I must keep close watch on him.

Meanwhile discovery was following upon discovery so rapidly that, if I had had any thought of yielding to McTavish's importunities, I would swiftly have abandoned the idea.

First of all, going out to inspect that copper-colored peak on which we had almost crashed at the time of our arrival, I found it to be composed entirely of Redstone, that same crumbly substance which made up the huge, queerly marked rectangles.

"Strange!" I remarked. "Don't remember ever seeing anything like this on Earth."

I carried a fragment back with me, to be analyzed in the space-car.

"Better watch out!" McTavish protested. "I wouldn't have anything to do with the stuff, Roddy. I've got a queer feeling about it."

I PAID no heed. The air of Orcus, I thought, had touched poor Walt's head.

So straight back to the *Urania* I hastened, eager to analyze that crumbly reddish scrap. Yet the experiment was never to be performed. Indeed, the would-be experimenter was fortunate to escape with his life.

Reflecting at my leisure, later, upon the amazing sequel, I concluded that I owed my salvation to two causes. To begin with, the quantity of Redstone I had taken was small. In addition, most of it was lost on my way to the space-car through a small, unsuspected hole which I subsequently discovered in my pocket. So that the amount with which I reached the *Urania* was, as nearly as I can judge, considerably under one gram.

The cause of the upheaval was per-

haps the relatively high temperature inside the *Urania* which, heated by powerful electric storage batteries, was about a hundred degrees above that of the out-of-doors. Or it may have been that the shock to which I unwittingly subjected the Redstone upset its unstable equilibrium.

In any case, I remember taking it from my pocket, and being surprised to see that there was so little of it left. In disgust, and feeling that this was hardly enough to analyze, I tossed the remains toward the waste-bin at the opposite side of the room.

I cannot say whether the explosion occurred while the Redstone was still in the air or after it struck the waste-bin. But I know it had barely left my hand when there came a blast that bowled me over backward. A brilliant flash of crimson light was in my eyes. The nastiest snarling noise I had ever heard hit my ears, and the room was filled with an intolerable suffocating odor.

Had McTavish not heard the commotion from just outside, rushed to the rescue, and let in some fresh air, I would certainly have been asphyxiated. As it was, I was lucky to revive after a few minutes, with no more serious impairments than a few bruises. And we were both lucky that, though some of our aluminum chairs had been twisted to junk and the walls had been scorched and dented in several places, the space-car had suffered no irreparable damage.

"Now curse you, Roddy," swore McTavish, as he stood triumphantly over me while I slowly recuperated, "I guess you've learned your lesson, and are about ready to leave this devilish Planet."

But far from desiring to leave, I now had every reason to wish to stay—at least, for a little while. For, as I gradually recovered my senses, an overwhelming realization came to me. Redstone was a high explosive! It was, to judge from the example I had seen, far more potent than dynamite or TNT! But how did it come to be here, on this desolate, forsaken Planet?

Thinking of the vast quantities of it I had seen, thinking in particular of the half-mile bricks of the substance and of the huge hieroglyphics, I reached a conclusion that at first seemed wildly fantastic, but at length impressed itself upon me as the only possible explanation. Orcus—perhaps because of its low temperature—had been used as the military repository, the arsenal of some Titanic race, which had stored here its explosives for wars of a scope and terror compared with which human struggles are as the conflicts of ants!

DOUBTLESS it had been in one of those contests that the very Solar Systems of which Orcus was a part had been blown to bits. The Planet, probably a remote and minor outlying world, had gone drifting homelessly through space, for thousands, or perhaps even for millions of years, before it had attached itself to the family of our own Sun, still bearing with it those tremendous reserves of Redstone.

But when it struck Moon, as it would on next July 14th, all those deadly vast reserves would erupt in an outburst such as had never been known in our part of the Universe. The cataclysm would be even more violent than scientists had predicted.

Yet need it strike Moon, after all? In a blinding flash, beneath the compulsion of my new knowledge, an idea had come to me—an idea so startling, so devastating, so fraught with unexampled hope and peril, that I could only gape in shuddery fascination toward the astonishing vistas it unfolded.

But I knew that before I could try out my newly conceived scheme, I must make some further investigations. I began them at once.

First of all, I experimented with some more of the Redstone, taking care to handle it in minute quantities only, and then out of doors and at a safe distance. The particle that had nearly wrecked the space-car, I found, was no exception. It was but an average sample. Any small fragment of the substance would explode as violently upon the application of heat or concussion.

Having made certain on this point,

I unfolded a little collapsible airplane we had carried with us in the *Urania*, and—since McTavish steadfastly refused to accompany me—made a solitary flight for two or three hundred miles in several directions.

The result was a startling confirmation of my theories! The Planet, while everywhere bare of signs of present-day life, contained not hundreds but thousands, possibly millions of the half-mile bricks of Redstone. In places they were piled one upon another by the scores and even by the scores of scores, in enormous rectangular mountains, all arranged as neatly as planks in a lumber yard, and covered with flat roofs of some sheeted metallic substance.

It staggered the imagination to consider what would happen should they all go off at once. Orcus was, in truth, little more than a monstrous cosmic bomb!

Returned from my scouting expedition, I placed my plans before McTavish.

"Fate is playing right into our hands, Walt," I told him. "You and I are the boys who are going to save the old Planet Earth. Want to know how? Well, you've probably guessed!"

"All I've guessed is that someone's brains are addled!" grumbled McTavish.

"Listen here, Walt! You're not half so stupid as you pretend to be! What's to stop us from touching off a fuse to these accursed mountains of explosive, blowing up this whole Planet before it gets anywhere near Earth? There's certainly enough Redstone to turn all Orcus into a cloud of dust!"

McTavish flung back his head, and laughed.

"If that doesn't sound just like one of your confounded half-baked concoctions!" he exclaimed. "What's going to happen to you and me if Orcus turns, as you say, to a cloud of dust?"

"Can't see that it matters much what happens to you and me if we save Earth," I countered. "However, there's no reason we shouldn't save our own hides, too, if you consider them so darned precious. We'll set off this explosive mess by a time-fuse connecting with some of those bricks of Redstone. But we'll allow ourselves leeway enough to make good our escape."

"Oh, yes, we will, like thunder!" scoffed McTavish, his expressive thin lips twisting into a grimace of disgust. "Well, you can blow yourself to hail Columbia, for all I give a hoot, but you'll not get me to stay on this Planet while you experiment with time-fuses in a nest of TNT!"

HERE was, surely, a most unreasonable attitude. Never would I have thought it possible that, with the safety of all Earth at stake and the chance of rescuing it from otherwise inescapable doom, that any man should consider the risk to his own priceless self.

I must admit that I lost patience with McTavish. This being the case, I was not in an ideal state of mind to plead with him. And so our debate brought us nowhere. Arguments gave place to recriminations, while steadfastly he refused to budge by so much as an inch.

When I hot-headedly vowed to go on with my plans heedless of his objections, he with equal hot-headedness dared me to do so, and accompanied the dare with ill-concealed threats that I would "be sorry."

I can see him to this day as he stood there before me, a slim, thin-featured, almost saturnine figure. "Yes, you'll be plenty sorry!" he repeated, while I, laughing contemptuously, swore that I would carry out my plan within twenty-four hours.

I would, I explained, attach a long, oil-saturated rope to one of the great piles of Redstone, lighting the loose end after making sure that the whole was long enough to burn for ten or twelve hours. Then I would race back to the *Urania*, and we would instantly embark. By the time the Redstone went off, in a series of great blasts that would detonate every other explosive mass on the Planet, we would be far enough away not to feel more than a passing puff of heat.

"Yes, you'll sure be sorry if you try it!" McTavish insisted, and from the angry way in which he chewed at his lips and kept eyeing me with what

seemed a malign glint in his eyes I might have known that he was planning something against me.

But so wrapped up was I in my project, so confident of being able to accomplish it despite his opposition, that I took scarcely any heed. After a few hours' needed sleep, accordingly, I prepared a fuse several hundred yards long, and hastened with it beyond a small rise in the land to some of the bricks of Redstone about a mile away.

"Have everything ready!" I cautioned the scowling McTavish. "We'll take to the sky the instant I get back!"

"Oh, I'll have everything ready, all right," he promised.

And there was such an unexpected acquiescence in his manner that I should have been more suspicious than ever—but was not. I thought that, by my firmer stand, I had won him over, no matter how reluctantly.

I had a little difficulty in adjusting the fuse just as I desired. It was about two hours before I had attached and lighted it and returned at twenty-foot bounds toward the *Urania*. That is, returned to where I had expected to find the *Urania*.

I shall never forget my stunned bewilderment as I mounted the rise toward our encampment, and looked down, to behold—nothing but the bare granite-gray ground! For a moment I could not take in the full, appalling, unbelievable truth. I merely stood as if petrified, scanning that patch of vacant landscape with incredulous eyes.

It could not be! What I saw simply could not be! Surely McTavish had merely gone off on a short flight in order to frighten me and would be back at any moment! He might be unreasonable, ill-tempered, vindictive, but he could not have committed this supreme treachery against his partner!

EVEN when I had come out of my daze, I could not realize that McTavish had really descended to this most contemptible of crimes, that he had marooned me on a world that was about to explode!

Yet the proof of that was to come to me in his own words. It may have been a minute later, or it may have been many minutes when, wandering blankly about the *Urania's* recent resting-place, I discovered the note. It was sticking out of a shaft in the ground, the ten-foot shaft dug to accommodate the Astro-Ray machine, which was to guide the space-car back to its destination.

Automatically, almost numbly, I plucked the note from its perch on the main Astro-tube. After opening it awkwardly with my fur-gloved hands, I read in the manner of one who peruses his own sentence of doom:

Roddy!

I know that what I am doing is beyond forgiveness. But forgiveness is not what I ask. Remember that you dared me, after I had given you fair warning. Remember that you were attempting an insane stunt that would have blown us both to smithereens. As it is, I have a chance of getting far enough away not to be shriveled by the explosion.

Earth and almost everyone on it is doomed anyhow. When I get back there, I will remain only long enough to induce someone to join me in the *Urania*. She *will* join me, of course, if she has any sense. Then off for Mars or Venus! There is no reason why the two of us, at least, shouldn't be saved!

Good-by!

Walt.

Looking back upon that moment of terrible realization, I am certain that what shook me out of my lethargy was the cold impudence of this note. Chiefly it was the reference to Betty that stung me, that infuriated me to action. After all, McTavish's treachery against me personally was nothing. But that he should have resorted to such methods to get Betty was more than I could endure.

All at once, beneath the pressure of my emotion, my brain cleared. In a stabbing burst of inspiration, I perceived that not all was lost. There was still a chance to save myself, while saving Earth as well! There was still time—though barely time, and with the best of good luck—to turn the tables on my betrayer.

First of all, back to the time-fuse!

No antelope ever sprinted with such speed as I made on that mile-long spurt, until I had reached the sputter-

ing rope and extinguished the flame. Then back again full-speed to the shaft in the ground where the Astro-Ray machine was hidden.

Surely McTavish, in the haste of his departure, had made an oversight! Or else, having no alternative, he had been willing to gamble that I would forget one all-important fact, or would not remember it until he was at a good safe distance.

This was that the *Urania*, on its return flight to Earth, had to be guided for the first few hours by the Astro-Ray, which was shot out by the machine secreted in the shaft here in Orcus! Without the Astro-Ray to direct it for the initial few hundred thousand miles, it would wander helplessly in space, ending either in the blazing caldron of Sun or in the black abysses of outer darkness.

In other words, McTavish was still in my power!

MIRTHLESSLY I laughed, a harsh laughter that rang out eerily in that lonely, granite-gray place.

Then, with the fury of one possessed, I set to work. A brisk wind had come up suddenly, and in the fearful cold of those open spaces my fingers were numbed even in their heavy gloves. I had to pause frequently to strike my sides and chest in order not to freeze.

Would I be able to manipulate the machinery? There were times when I doubted it. Many minutes passed before I was able to move the gauge, which diverted the rays away from Earth, out toward the orbit of Mars, of Jupiter, of Saturn, and off into the appalling void of space.

This meant that McTavish, thrown off his course, would face a terrible choice. Either he would go to certain doom in the blind wastes of the Universe, or he must guide himself back along the Astro-Ray, back to Orcus!

Knowing McTavish, I took his choice for granted. And again I laughed to myself, a low, harsh burst that sounded weirdly in my own ears. He wouldn't get Betty after all.

It was less than two hours later when, huddling in the Astro-Ray shaft to keep from freezing in the

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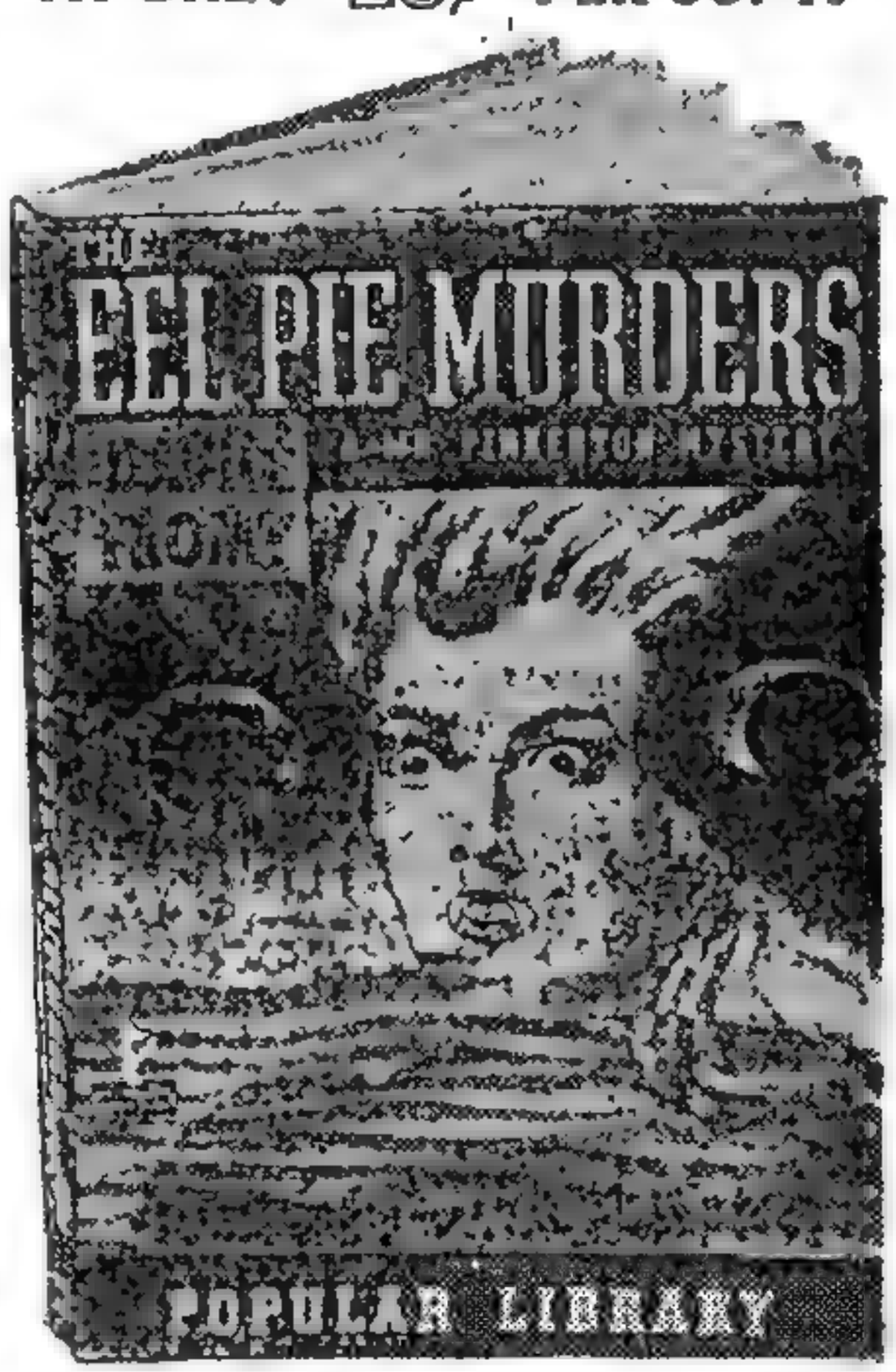

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heavy wind, I became aware of an object breaking through the swift-moving clouds above. It was a long silvery oblong which, shifting from side to side in the gale, shuddered convulsively, twisted about like a great top, turned on end, subsided again, struggled to right itself like some imperiled living thing. Then, in a long jerky spiral, it came whirling downward.

In awe-stricken fascination I watched, recognizing the *Urania*, knowing that she was out of control, and was about to make a crash landing. But what if, amid her ungovernable flutterings, she should strike one of the piles of Redstone?

Her struggle with the elements, it seemed to me, was long protracted, agonizingly long protracted, although actually it could have lasted only a few minutes. But the climax came with an abrupt blood-chilling swiftness.

In the midst of her wild careenings and cavortings, as she plunged but a few hundred yards from the Redstone mountain, suddenly the lower hatch was flung open. In unbelieving astonishment, I saw a man framed in the aperture. For a fraction of a second only he was poised there. Then, before I had had time to ask myself whether he had lost his wits with terror, he had launched himself into the abyss.

The distance to the ground was, as nearly as I could judge, not much over a hundred feet. And, thanks to the lower gravitational pull of Orcus, this was the equivalent of not more than twenty or thirty feet on Earth.

Could it be that McTavish thought he could safely cover this distance? Or was he so panic-stricken at the danger of hitting the Redstone that he scarcely knew what he was doing? Did he really jump at all? Did he lose his balance, and tumble out?

I shall never know the answer to these questions. I did not, for that matter, witness more than the first half-second of the victim's descent. For, even as he started to drop, the *Urania* veered away on a sudden gust and, to my horror, headed straight for the coppery mountain.

BARELY in the nick of time, it veered once more, and avoided blowing itself and the Planet to dust by a matter of yards. Then almost as if guided by some intelligent pilot, it drifted down in a long graceful curve, and came to rest on the granite-gray plain, shaking convulsively, but miraculously undamaged except for one bent landing wheel.

My first thought now was not for the space-ship, all-important as that was. It was for my erstwhile comrade. But not until after a considerable search did I find him. After about two hours I discovered the ravine where he lay, his battered form stretched motionless upon a rock.

A single glance, and I knew that he was beyond help. Already he was icy stiff. Though I could not tell whether it had been the fall that killed him, or the freezing blasts whose Arctic cold had penetrated his rent clothes.

I did not pause to make a grave, since his sepulchre would be the whole of space; but in my heart was a deep sadness for him who had once been my friend, traitor though he had turned out to be. Silently I drew the folds of his cloak about the pale, grim face, then uttered a prayer.

Shuddering at the thought of remaining on this tomb of a Planet one second longer than necessary, I hastened to perform some needed work.

It was not many hours later when, having readjusted the Astro-Ray and fixed a time-fuse that would burn for more than half a day, I reentered the *Urania* and pointed its nose skyward. The storm had now died down, and before many minutes Orcus was but a dwindling gray ball far beneath me, while I shot back toward Earth at twenty-five miles a second.

Maintaining this velocity, I was more than a million miles in space before the twelve hours allowed for the time-fuse had elapsed. I now was set so precisely on my proper course that the aid of the Astro-Ray machine was no longer necessary.

Just a little before the expected moment, I was treated to the most stupendous exhibition of fireworks any man ever witnessed. A red flare burst out far beneath me, from the

direction of Orcus. It was followed instantly by other flares, crimson and purple and emerald and sulphur-yellow and deep-orange, while huge licking flames like Solar prominences lashed thousands of miles into the sky.

Half-blinded by the brilliance of the outburst, I looked away for a moment. When I once more turned my shaded eyes toward the upheaval, all that I saw was a dazzling eruption of white flame, which spread to inconceivable distances on all sides, and then slowly faded into a smoldering greenish phosphorescence like the expiring tail of a great meteor. At the same time, such a wave of heat lashed about the space-car that I had to throw off all my clothes. Even so, I feared that I would be shriveled like a lamp-caught moth.

But after a few minutes, the heat began to die down. Then, peering through a three-inch telescope in the direction of Orcus, all that I could see was that dimly smoldering expanse, growing fainter and ever fainter, But of Orcus itself there was no sign. . . .

THIRTY-THREE days later, when I reached Earth, I was just in time for the International Sky Festival, whereby mankind celebrated its deliverance from the peril of space. The Planet Orcus, scientists had reported, had suddenly blown up, scattering immense fragments in a thousand directions, all fortunately far from Earth's orbit. And though no one could explain the phenomenon, all were rejoicing at the rescue from certain destruction.

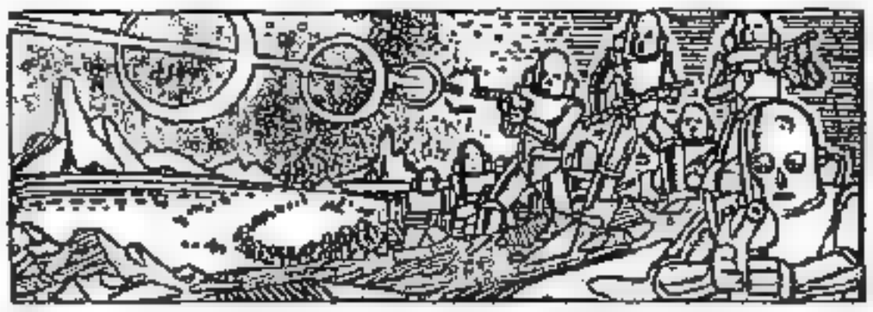
On the fourteenth of the following July, at 5:13 in the morning, when Earth had been scheduled to gasp out its last, all that was noticed was an unusually brilliant meteoric display. Several aerolites, rescued from where they had fallen in fields and deserts, were found to be of a peculiar granite-gray substance.

But there was only one man on Earth who saw the connection of all this with Orcus.

However, that one man did not greatly care. He was at that moment on his round-the-world honeymoon flight with a lovely flaxen-haired lady, before returning to Washington to accept the post of Secretary of Interplanetary Affairs.

As they passed over the blue spaces of the South Pacific, just at about the

(Concluded on page 129)



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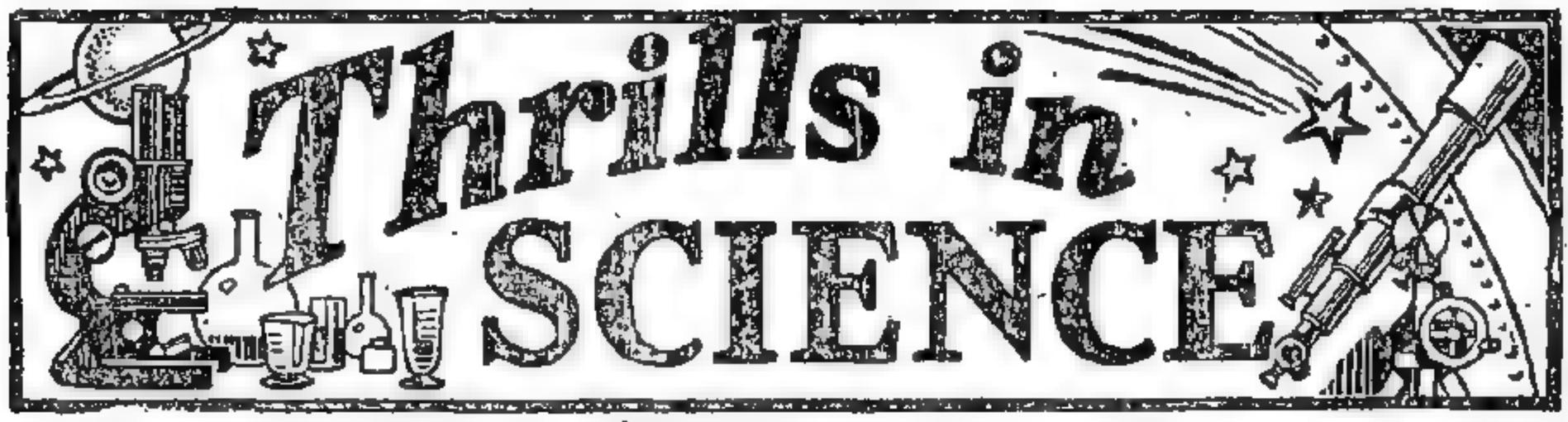


Thumbnail Sketches of Great Men and Achievements

By OSCAR J. FRIEND

"FLOOR, PLEASE?"

The Story of Travel in the Third Dimension

HIS name was Elisha Graves and he was born in the small town of Halifax, Vermont, in 1811. He wound up in Yonkers, New York, where he died in 1861, a moderately successful manufacturer of heavy machinery, in his fiftieh year.

Such a factual but uninspired statement could truthfully cover the major points in this typical American's career. In fact, we'll go ahead and be generous, giving you the rest of his name. It was Otis—Elisha Graves Otis—the elevator man. Not much of a thrill to that, is there? But if it hadn't been for 'Lish Otis there could have been no modern metropolises today, there could have been no Empire State Building, no Chicago Board of Trades Building—no skyscrapers at all.

And yet, strangely enough, Elisha Otis had nothing to do with the construction of steel-and-concrete buildings. He didn't even conceive the idea or invent tht kind of machinery he started manufacturing. What sort of machinery was it, you ask? Well, it began by being hand-driven and then steam-driven "platform lifts." Elevators to you.

Other men had developed vehicles and machines which traveled by various means of locomotion and with varying degrees of safety in the two dimensions of land and sea. But it remained for Elisha Otis to point the way for travel in the third, or depth, dimension.

A sort of crude platform lift appeared about the middle of the eighteenth century as a hoist in mines or for freight warehouses. Prior to this there were baskets and slings on ropes. To whom belongs the credit for the idea we do not know—probably some aboriginal caveman who learned how to raise and lower himself up and down the face of a cliff in primordial times.

The fact remains that mechanical elevation had attained little improvement when Elisha Otis set about manufacturing platform lift machinery in Yonkers about 1850-51.

Indeed, a man named Henry Waterman had already built a crude lift for a two-story building in New York; and the George H. Fox Company of Boston was building the same kind of spur-geared and steam-powered contraptions.

But Elisha Otis was, nevertheless, a thinker and an inventor in his own right. Not only were platform lifts crude and unwieldy and slow and expensive. They weren't safe!

"Now you are talkin' like a crazy man," said his foreman quite frankly one day when Otis was enlarging on this favorite subject. "Who cares whether these things is fool-proof? Nobody rides 'em. They're just to move freight up and down a couple of floors. They work pretty well, and you're makin' a livin' out of buildin' 'em, ain't you?"

Otis ignored this query. His eyes were wide and had a faraway look—as though he saw the high-speed express elevators of the future which could travel twelve hundred feet a minute. But that would have been a crazy dream. They hadn't even built the Flatiron Building yet.

"What these lifts need, Jerry," said Otis, "is a safety device which will make them safe for people to ride. If we had that, we could sell our lifts to every building over two stories tall. In fact, who knows how tall they could build buildings if there were a quick, safe way for people to reach and leave the upper floors?"

The foreman, a privileged friend and employee, snorted. "You mean, you want a contraption which would sorta catch the lift and hold it if it started to fall—like an old man grabbin' the arms of his chair when his legs give way, eh?"

Elisha Otis stared at his foreman oddly and blinked.

"Yes, that's it, Jerry," he said in a queer voice. "And I think you've given me an idea."

Whether or not the foreman had succeeded in stimulating the inventive genius of his employer is immaterial.

The fact remains that Elisha Otis came forward in 1854 with a brake device which worked on the principle of an escapement wheel in a watch, or the tooth-and-toggle gear of a handbrake. Only it worked on a vertical line, tripping easily over the ratchet teeth as the elevator was raised or lowered, and springing out to engage firmly in the teeth in case of an accident.

Elisha Otis fitted up one of his platform lifts with his device and insisted on riding the lift when it was tried out. There was great anxiety when the test was made, but Elisha Otis had faith in his invention. And he proved correct.

When the rope which lifted the platform was cut, the safeties took hold smoothly and held

the lift—like an old man bracing himself with his arms on his armchair as his legs gave way.

"All safe!" cried Elisha Otis, and all was safe, indeed.

From this comparatively simple beginning the future of the large cities of today sprang. Although Elisha Otis died in 1861, he left sons to carry on his work.

Thus, Otis, and then Otis Brothers, built the first successful passenger elevator in 1857, installed the first successful hydraulic lifts which could lift a cage to the height of ten stories at a speed of six hundred feet per minute, and in 1889 constructed the first successful electric hoist.

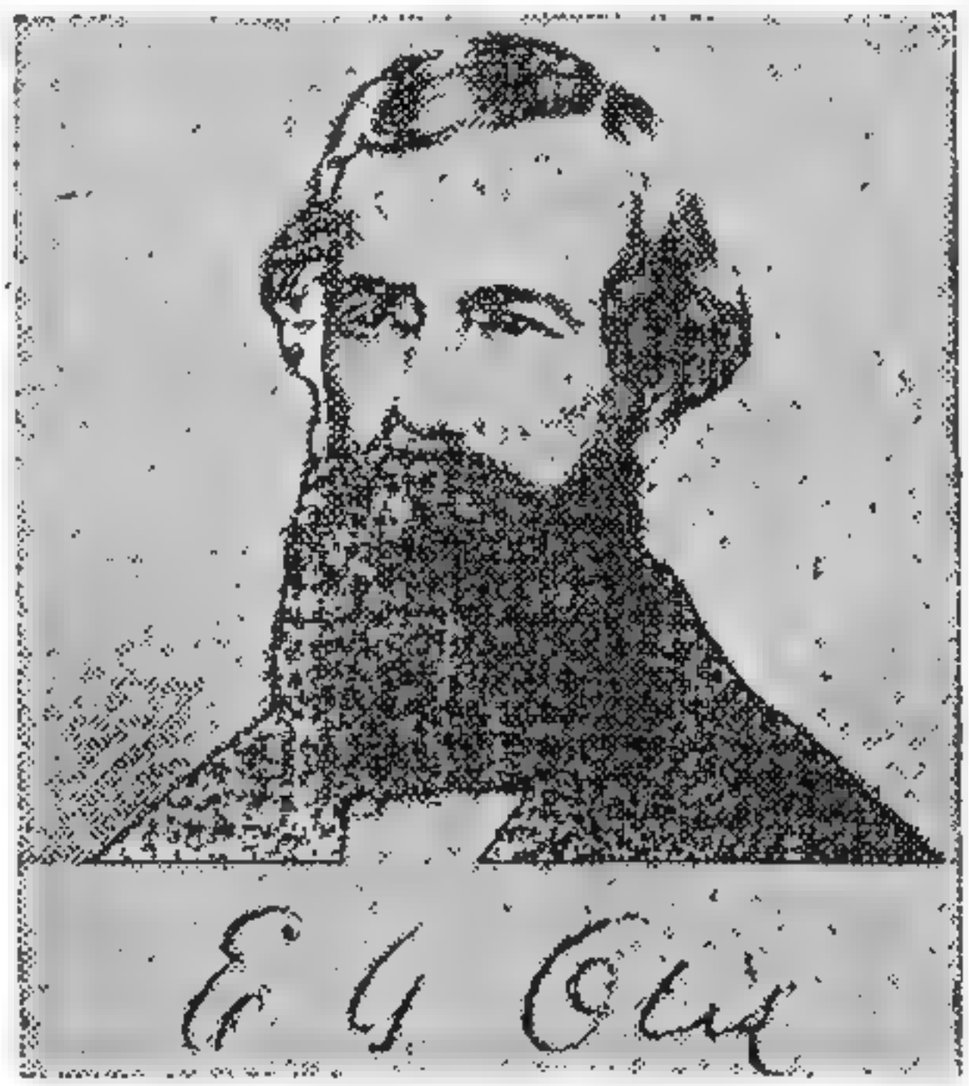
Improvement followed improvement, both in type of drum and cable equipment as well as in electric signaling and automatic devices. As fast as skyscrapers added another ten or twenty stories to their height, the Otis elevator added speed and safety devices to its increasing lengths.

In 1904 the Otis Company introduced the first gearless or direct-traction machine. This was the forerunner of the high-speed express elevator.

Today a system of express elevators take office workers directly from the ground to the fortieth floor on the first stop. And even higher. Cars travel at the rate of fifteen miles per hour.

In New York City alone there are more than 41,000 elevators, which travel more than a hundred thousand miles per day and carry more passengers than all the other transportation facilities of the metropolitan area combined.

The modern city of skyscrapers is possible only because Elisha Otis anticipated a need before it was known as a need, and supplied



Elisha Graves Otis

safe travel in the third dimension which has made the skyscraper possible and practical.

ALCHEMY TURNS TO GOLD

Paracelsus, The Traveling Doctor, Fathered Modern Chemistry

IT WAS the year 1516 that a young and rather delicate-looking chap in his middle twenties entered the Tyrol country. He came down the dusty road from Innsbruck toward the Brenner Pass where the counts of Fügen were exploiting the veins of ores in the surrounding mountains and running what today might be termed a mining school. It was really a sort of research laboratory where alchemists were cordially welcome.

Not that the Fügers hoped these men would really discover how to make gold, but that they hoped to profit by the extraction of zinc and copper and any other metals salvaged from the mountainside.

And not that this newcomer with the light and scraggly beard was a crackpot alchemist. An alchemist, yes—because there were no other kinds of chemists in those days. But a seeker after the Philosopher's Stone, no!

His name was Phillipus Aureolus Theophrastus Bombastus von Hohenheim, the son of a German doctor at Villach in Carinthia. To all of which title he tacked on the name of Paracelsus.

Paracelsus tarried for a while at the town of Schwartz, studying the methods of the alchemists and the work of the regular mining crews. He was a queer sort of character, this Paracelsus, disgruntled, vindictive, rather foul-mouthed and sarcastic, and utterly tactless. But he was a man who wanted to know the why of things.

He saw no reason for following senseless formulae which got you nowhere. He had already given up the medical profession as a hopeless and ignorant lot of rubbish, and he had discarded the gold pursuit of the alchemists as a vapid dream.

But he now became interested in the common people. He saw miners hurt in the mines and saw all sorts of treatments used. And he saw Nature's way of dealing with such accidents.

In short, he really learned how to be a physician here in the Tyrol. All sorts of people traveled through the Brenner Pass, and Paracelsus early learned that the professional soldier, the itinerant tinker, the midwife, the old peasant—all knew simple things about herbs and healing which the doctors and alchemists did not know—a rather startling discovery which is still true in lesser degree today.

But Paracelsus was not too proud or superior to stoop to learn homely little things from people. Thanks to his peculiar knack for irritating people, he soon had the alchemists at Schwartz angry with him. And finally it became so bad that he left.

Up and down Europe he roamed, practicing medicine to pay his way, learning things most unorthodox here and there. His fame began to grow, to go before him. Because Paracelsus got results from his crazy treatments.

But he had no real friends, and he was tired

of traipsing about the country. He wanted to settle down in peace somewhere where he could practice medicine and lecture young students. But the doctors and alchemists fought him bitterly.

Why the alchemists were against him could only have been because he knew their inmost secrets and mocked and scoffed at their futile labors to make gold. The doctors had more personal reasons, as we shall see.

It is in the year of 1526 at Basel, Switzerland that Johann Froben suffered a slight accident to his foot. Froben was a liberalist bookseller and publisher, famous in his own right and a personal friend of the famous Erasmus of Rotterdam, that great humanist whose writings had done so much to prepare the way for the Reformation.

Doctor Tweasel, old-fashioned follower of the Galen school of treatment which looked to the past for wisdom, succeeded in inflaming Herr Froben's foot to an alarming state. He called in Doctor Tazzle, an adherent of the Arabian Avicenna method of doctoring. Be-

Paracelsus

tween the two of them, they got the foot in a very ugly state, indeed.

"The only thing to do is to amputate the foot, Herr Froben," advised Dr. Tweasel. "What do you say, Dr. Tazzle?"

"You are quite right, Dr. Tweasel," agreed the second physician sagely. "Amputate, and then use a poultice and a prayer."

And Johann Froben would undoubtedly have lost a foot and quite probably his life if Erasmus hadn't appeared on the scene.

"Amputate his foot?" the great writer cried hotly. "Indeed not! We will first see what Dr. Paracelsus says. He is in this neighborhood, and I shall send for him at once."

Paracelsus was discovered at a roadside inn, sadly contemplating his past life. He had just been run out of Strassburg for his unorthodox methods and teachings, and he was about ready to give up in bitter discouragement. The doctors would have none of him and would not listen to him.

The message from Erasmus was like a friendly bolt from the blue. Gathering his meager equipment together, Paracelsus hied to Basel and examined Froben's foot. He asked innumerable questions—about Froben's life and habits and the treatments applied by Tweasel and Tazzle. This done, he snorted caustically and proceeded to soak the foot in a solution he made up from mineral salts he had learned about in his study of alchemy. After a couple of days of this treatment, Paracelsus dressed the foot with an ointment he prepared. The foot took an immediate turn for the better, and Erasmus and Johann Froben took counsel with the itinerant physician.

"How," asked Erasmus, "were you able to work such a miracle with herbs, Dr. Paracelsus?"

Paracelsus snorted. "No herb would have cured this infection," he replied bluntly. "No ordinary doctor would have known the cure. It came from the realm of alchemy. I used a salt of mercury."

"Alchemy?" exclaimed Froben curiously. "But isn't that a craft that seeks to make gold?"

"Yes," replied Paracelsus bitingly. "For two thousand years the fools have labored to make gold and find a magic elixir of life. In all this time they have learned many interesting facts about minerals and earths—and they have done nothing with them. I say that alchemy is the handmaiden of medicine! Instead of the narrow-brained doctors looking back to the past for medical wisdom, they should go forward hand in hand with the discoveries of wise men of today."

"I have heard that you are a great alchemist also," commented Erasmus thoughtfully.

"Bah!" said Paracelsus. "No seeker after a will-o'-the-wisp am I. I use to cure man's ills what the alchemists have learned for me."

"You are a learned man, Paracelsus," agreed Erasmus, "but you are getting nowhere."

"That is true," agreed Paracelsus gloomily. "I wish I could make doctors and alchemists listen to me. They are both wrong. They should pool their knowledge and work to cure the many ills of mankind. What they need is a sort of medical Moses to lead them out of the wilderness."

"That is right, and I think you are that man," stated Erasmus.

"The office of city physician—which carries with it a chair of medicine at the university—happens to be vacant at this time," observed Johan Froben keenly. "Will you accept that post, Paracelsus?"

Paracelsus would—and did. And for the first time in his life found himself in a position of power and authority, with two powerful and influential men behind him.

The result was that Paracelsus publicly united alchemy and medicine.

He taught that alchemy's duty was not to attempt the transmutation of baser metals into gold, but the application of what had been learned in two thousand years to the healing and curing of ailing men and the prolongation in this fashion of human life.

Thanks to the injured foot of Johann Froben and the presence of Erasmus, a happy moment in history was struck. For the first time a courageous man had come forward who dared to unite the two sciences. Paracelsus was the man who welded alchemy and medicine together. He became thus the father of modern chemistry and the executioner, as it were, of the musty and mystical quasi-science called alchemy.

THE PNEUMATICAL MACHINE

Robert Boyle Was Curious—and Learned the Answers!

"NATURE," said the pompous and fussy lecturer, "abhors a vacuum. This is obvious inasmuch as water can be noticed to follow the stroke of a pump."

"But why?" asked one of his listeners, an earnest young man by the name of Robert Boyle.

The lecturer peered over his glasses in disapproval.

"Who are we to question the whys and wherefores of Divinity? It is enough that the law is so."

This sort of talk did not satisfy Robert Boyle. He turned to the works of Hobbes, a physics student and philosopher, who had written at great length on the eccentricities of a gardener's water-pot which would cease to drip water if the hole at the top were stopped.

There was something wacky about Hobbes' theory of water and air displacement, too. For Robert Boyle discovered that if the watering-pot were made in the form of a pipe thirty-five feet long, filled with water and placed in a vertical position, the water would not wait until a hole was opened at the top, but would flow out immediately until its level stood at about thirty-two feet above the bottom.

Further, when Boyle repeated this experiment on a mountain, more water would flow out than at sea level. It didn't make sense. Why should Nature abhor a vacuum less on a mountaintop than at sea level?

It was while Robert Boyle was scratching his head over this problem that he ran upon the account in 1667 of the experiments in 1654 at Magdeburg of a man named Otto von Guericke.

Von Guericke had invented a pump which would exhaust the air in a given container instead of pumping in and thus compressing the air. It happened that his apparatus wasn't very practical, but he succeeded in demonstrating the power of the vacuum. What was more important, von Guericke contributed thus in his small way to the birth of modern chemistry.

For Robert Boyle, still hot on the trail of that vacuum and watering-pot idea, quickly seized on von Guericke's machine. Boyle knew that the Torricellian vacuum at the top of a column of mercury was a very good vacuum indeed, but it was rather useless for experiment as there was no way of getting at it.

Von Guericke's pump, however, showed Boyle how to create his own laboratory vacuum.

"We need a better way of exhausting air save by using a pump piston stroke under water, Bob," he said to his friend and helper, Robert Hooke. "I wonder if we can't make better washers out of leather, sealing the stroke and the leaks with oil."

They could and they did. And it wasn't long before the two young experimenters had a better exhaust pump than the inventor, von Guericke.

Just as the modern schoolboy in physics toys with tiny balloons partially filled with air, experiments with flies and bugs and other objects to be examined under the bell jar of a vacuum, so Robert Boyle began with his own pneumatical pump and glass jar. He proved the "spring" of air with partially inflated bladders which swelled and ruptured in a vacuum when he exhausted the air from around them.

But Robert Boyle went much further. He was still trying to prove or disprove that theory about Nature and the vacuum. He still wanted to understand the watering-pot business.

So he now filled a U-shaped tube with water and closed it at one end, leaving a small bubble of air at the top. Then under the bell jar this went. When the air was pumped out, the bubble stretched until it filled one entire leg of the tube. The spring of air was definitely demonstrated. But it wasn't enough that the vacuum had a remarkable effect on many things; Boyle wanted to measure his vacuum accurately and learn if it was the same as the mystery space above the mercury of a barometer.

He still wanted to understand that sea-level and mountaintop water-pot business.

This led him to the experiment of placing a barometer in the vacuum jar to see if the mercury fell as the air was removed. If it did fall, it would prove that the mercury was held up by the pressure of the atmosphere. It would point the way to the explanation of the water-pipe at varying levels of air pressure.

It would, in short, prove or disprove the doctrine that Nature abhors a vacuum.

Needless to say, the mercury in Boyle's barometer fell duly as the air was exhausted. The abhorrence theory was completely shot, and what was more significant and far-reaching, so was a greater part of man's theoretical habit of thinking. Another champion of the Missouri school of thought had arisen to urge mankind onward.

But Robert Boyle was not through here. He was only beginning. He took another U-shaped tube, one with one leg shorter than the other, and filled the curved bottom with mercury, making sure that the mercury in both legs stood at the same level.

This indicated that the trapped air in the sealed leg was at the same pressure as the atmosphere. Then Boyle pasted strips of paper on both legs and marked graduations on them. Now he was ready to do an experiment which he could measure.

His object was to see if a column of mercury long enough to double the pressure of the atmosphere on the air of the short leg would reduce the volume of that air by one-half.

Quite excited, Boyle carefully began funneling mercury into the open end of the long leg of his tube. His helper watched the air in the top of the closed end. As soon as it had compressed to one-half its volume, he cried to halt. Boyle did so, and looked at the column of mercury. It registered exactly twice the atmospheric pressure!

This may sound a bit silly and pointless to

(Concluded on page 127)

THE ETHER VIBRATES

(Continued from page 11)

Well, there's no point in carrying this any further, I guess. So I'll go back to my cheese

S'long, and keep up the good work with the Big Three.—*Camp Abbot, Oregon.*

So you take exception to the old Sarge putting in a plug for milk, eh? Well, Pee-lot Burgeson, in case you don't know it, milk—in one form or another—makes some mighty fine highballs and such. And fermented mare's milk is still a beverage with a kick in it in certain parts of the world. Oh, let it lay. Milk has its uses. It's water that rusts the stomach.

ARTWORK IMPROVING

By Paul Carter

Sarge, old space-rat: Well, the *Jolly S.S.* isn't docking so frequently now, but we are to receive one compensation, apparently: the paint job is one of Bergey's best in a long time. It is worthy of being compared with the covers of '39 and '40, "before the crash." It is a striking and realistic job, attractively colored, *and*, miracle of miracles, *there isn't a B.E.M. in sight!* While I am recovering from my astonished daze, you will kindly serve out five brimming Xeno jugs to our beloved artist.

Glancing over recent issues, I note two items of unusual interest: (a) you have been easing off on the giants, B.E.M.s, and red garments; (b) Belarski has poked his head above ground only once this year—in January. A hasty check of T.W.S. reveals that revolutionary changes have taken place there also, as well as with Cap Future. It is about time somebody stood up on his hind legs and informed the world that big events are taking place in the realm of artwork. Be so kind, Sarge, as to break out a supply of Xeno for the art department—with a promise of more if they continue to be good little boys and not let Belarski in again.

Interiors: Marchioni is beginning to cook with gas. He gets a very pleasing effect with his contrasting blacks and whites, while managing to cut down on the comic-strip air that was once his chief bane—4½ jugs. Finlay, of course, is his unbeatable self—5 jugs or more. The Hall of Fame pic was either printed from a century-old cut or else was done by an artist on a three-day bender; nevertheless, it has an indefinable Something—let's say 3 jugs. The daub on page 97—yike! One jug of wood alcohol, and I hope it kills the guy.

Shorts: Both of them were pure, unadulterated space-filler. Both had central ideas which have been much better done, and done over and over again. Two Xeno jugs between 'em, well diluted with grape juice.

Novel: Probably the best full-longther since "Blood on the Sun." 4½ jugs—maybe a little more. And just why did I like it? Two main reasons—a sudden spurt of energy from Mr Rocklynne, making this a refreshing piece of work after the deluge of hack from Ross's pen lately (vid. "Exile to Centauri" in current TWS); and the fact that I'm a sucker for those "parallel-worlds" yarns, anyway. Then, too, it might be the post-Cummings reaction. . . .

Hall of Fame: It was a darn good story, "The Space Dwellers," worthy of its four Xeno jugs—but *four jugs isn't enough for a reprint.* You might better give us new stuff at that rate, and be done with it. If the bored audience will bear with me for a moment, I should like to delve into this matter of the Hall of Fame's failings a little more deeply.

I believe you are no longer selecting classics, you are merely picking up any story that comes to hand and is of sufficient age. Since "The Fitzgerald Contraction," only one story betrays any sign of conscious selection whatsoever: "The Ideal," by Stanley G. Weinbaum. Now you may get an occasional story, by that method, which might be called "exceptional." For example, "The Green Torture," a top-notch piece of prophetic writing. But you will get very few, if any, classics. How much more good stuff you'd get if you made a conscious effort to pick the *best!* You have abundant material, Wonder Stories and Wonder Quarterly since 1929. Let's do some *thinking* about nominations for the Hall of Fame.

Here are a few suggestions for rejuvenating that department. *First:* Print, as Mr Rocklynne suggests, and by all means soon, Daniels's "Branches of Time." You've been promising that to us off and on, for the last three or four years. That will work wonders with the quality and reputation of the Hall of Fame. That's just a temporary measure, though.

Second: Print the rest of the "Man Who Awoke" series. And don't go yapping about how long it is; you know, and I know, that serializing "The Man Who Awoke" in *Captain Future* was unnecessary. You've run five-chapter novelettes complete in S.S. before. You could again.

Third: Repeat your trick of '40-'41: get some fans to nominate their Hall-of-Fame choices. Remember what happened, the last time you tried that? In rapid succession, you gave us "The Man Who Evolved," "The City of the Singing Flame," "The Worlds of If," "The Literary Corkscrew," "The Man-Beast of Torce," and "Death from the Stars." All were exceptional; the first three were recognized classics. And there are plenty of fans other than the six you called upon who are just as qualified. Wollheim, Ackerman, Tucker, Unger, Freehafer, to name only a few. Let's try that method again.

Fourth: Probably the best bet of all—once in a while, *don't run a feature novel.* Then you can give us some *long* Hall of Fame classics—and it's the long stories the fans have been yelling for. "The Final War," by Carl W. Spohr, is certainly timely as of the present moment. "Dawn to Dusk," by Eando Binder, which raised one of the biggest storms of acclaim of any story published during that year (1934). "The Time Stream," John Taine's profound and mystical novel of the distant past. "Exile of the Skies," Richard Vaughan's interplanetary classic. "In Caverns Below," by Stanton A. Coblentz, one of the finest satires in the history of science-fiction. "The Green Man of Graypec," probably the best thing Festus Pragnell has ever written. And on, and on, and *on!*

Well, that's enough on the subject. What is my small voice, crying in the wilderness? *156 So. University St., Blackfoot, Idaho.*

Nice letter, Kiwi Carter. The old Sarge has no comment to make. I pass what you say on for pee-lot discussion. You might have something in the idea of a special issue with a long Hall of Fame story. I don't know whether that idea would appeal or not. Let's let the other junior astrogators kick the suggestion around a bit.

PLENTY TO SAY

By Ronald Maddox

Dear Sarge. I got plenty to say about this here Fall issue of S.S. And how. The first thing, of course, is the cover. It was a velly, velly nice cover indeed except that it was quite similar to the cover illustrating another story on another magazine. I can't quite remember where.

After the cover comes the story. Ah, yes, the story. I wonder why they put them in mags. I suppose so you can look at the illustrations. But in any case "Pirates of the Time Trail" is the worst lead novel I've ever seen in dear old S.S. Now by the worst lead it doesn't mean it isn't good. No-sir-ree. In fact, to be truthful, it was very good, indeed. That alone tells you that out of all the S.S.'s I've read I have never once disliked the lead story. "The Monkey and the Typewriter" was also a velly, velly good story. (I'm sympathetic with China.) "The Space Dwellers" is the best Hall of Fame story that you've ever printed. I used to like the Hall of Fame, but beginning with the next issue, I guess I won't like it anymore. Why? because I've already read "The Last Woman."

"Secret Weapon" was a clever little thing and I enjoyed it every minute. The Ether Vibrates was the best thing in the issue. (Because my letter was in it. Hah Hah.) The rest was O.K. It's too bad that S.S. has to go quarterly, but as you would say (I think I pulled this one before) I regret that I have but one month to give to my country.—*87 Utica St., Hamilton, N. Y.*

Another pee-lot with a touch of Chinese dialect. "Pidgin" English it's called in some quarters. "Dead Duck" is the space term for it. And, odd though it may seem, Pee-lot Maddox, there will be other Hall of Fame stories after we have printed this particular one you remember. Better watch things, or we'll slip a few stories past you that you'll wish you had stayed to read.

WHAT? NO SATURN KICKS?

By Richard Lovelace

Dear Sarge: Here's my opinion of the Fall ish of S. S.

The cover: green sky, yellow clouds, and flying arsenal. What a combination! Put Bergey some place where he can't mutilate any more covers.

The stories:

1. "The Space Dwellers"—excellent! I've heard that plot before, but I still like the story.

2. "Pirates of the Time Trail"—good. While other mags. stories get worse, STARTLING'S stories get better.

3. "The Monkey and the Typewriter"—average.

4. "Secret Weapon": arghhhh! How can people write stuff like that? For that matter how can people publish it?

The Ether Vibrates: Most of the letters were good. What, no letters denouncing ye olde Sarge? Is the reading public coming to its senses at last. Hope your shipment of Xeno comes thru from Pluto.—*309 So. Dartmouth, Albuquerque, New Mexico.*

I don't understand that lack of squawk myself, Pee-lot Lovelace. Guess I'll have to stop using that powdered aspirin in the flour sifter. It over-deadens my sensitivity, perhaps. Or maybe it's the lack of red meat in the kiwi diet lately. The old Sarge will have to speak to the food-rationing board.

MORE FROM RAY CUMMINGS

By Chad Oliver

Dear Sarge: Well, disintegrate me and call me nonexistent if the good ship STARTLING STORIES hasn't come up with another good issue! Settle back in that plush, overstuffed chair of yours, Sarge, and read on in rapture as science-fiction's famous One-man Gallup Poll gives out with words of wisdom anent the Fall S.S. Hyar we go—from a super Bergey cover to Man Mountain Bonomo, alias Why-Joe-it's-just-like-hitting-concrete!

Firstly, as is fitting, suppose we have a look at Ross Rocklynne's lead novel. It started off in very poor fashion—speaking now of the first one and a half chapters—with Yank supermen whacking down a bunch of foul Sons of the Hot Place right and left. The Japs blast away madly! The Yank bomber can hardly hold together! It begins to fall apart! Will they surrender? Why bother?—This is science-fiction; readers are used to impossible stuff. Really, though, if you could only know how sick and tired we readers are of war corn—but you'll never know, as the popular ballad says. *[Turn page]*

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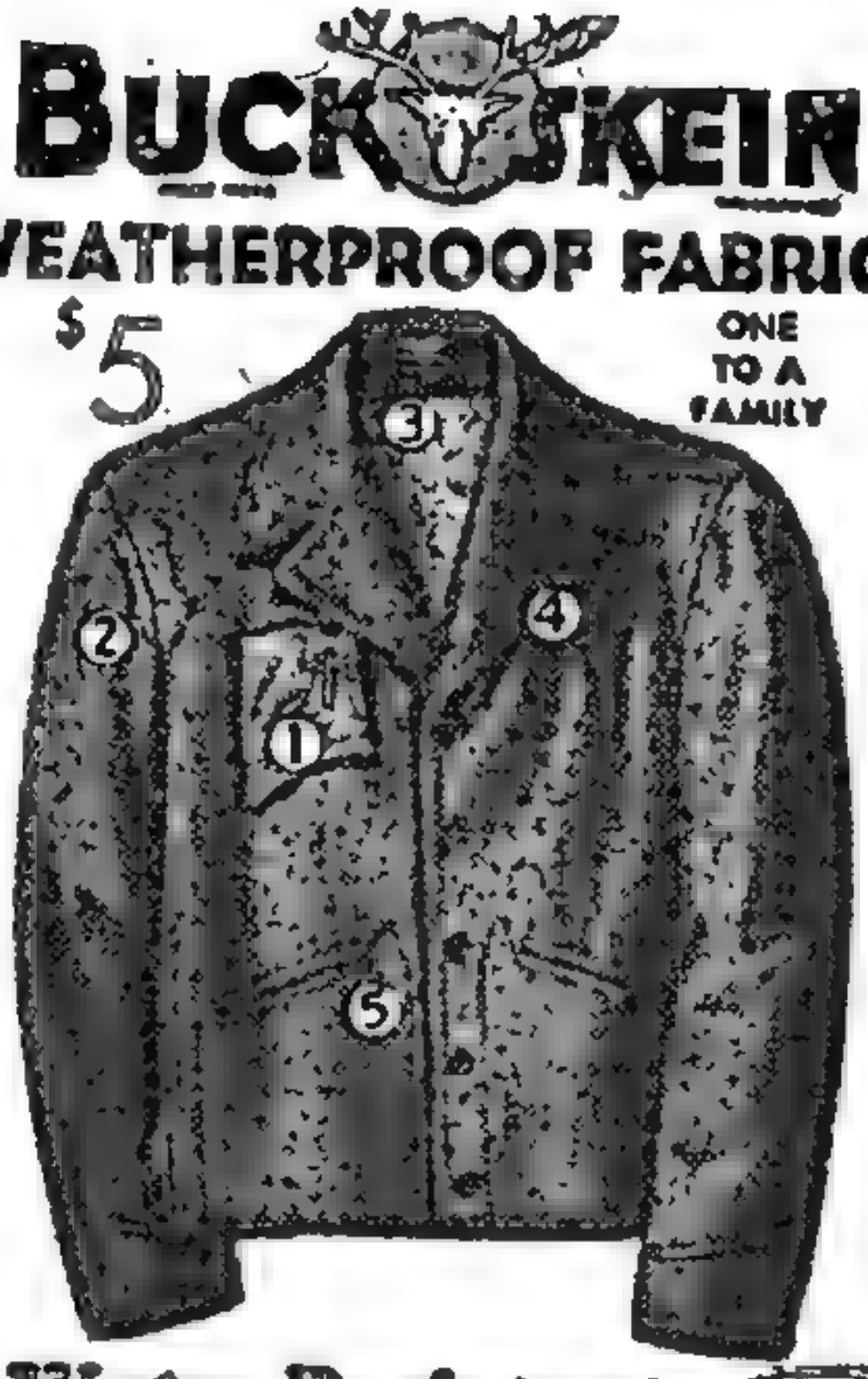

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After that introductory Cawn, the novel improved vastly, and came out as the second best novel this year in SS—surpassed only by Ray Cummings' superb "Wings of Icarus," and not by too wide a margin at that. I was glad to see the emphasis on character development, by the way—a step in the right direction. Summing up, "Pirates of the Time Trail" was an excellent story, and Author Rocklynne certainly redeemed himself for the awful "Exile to Centauri" thing in TWS.

Gallun's Hall of Fame story was sheer ecstasy—the best story in this issue, as a matter of fact. I like the old style of science-fiction, and you could do a lot worse than contact Gallun with regard to his writing some more yarns along the lines of "The Space Dwellers."

The other two yarns "also ran."

The cover, as mentioned above somewhere, was super. That one word says all that there is to say; more would merely be superfluous.

As for the interior art, we find but two acceptable pix, done by Finlay and Orban in that order. Marchioni's work for the novels is a crime, no less. When I think of what Finlay, for example, could have done with the characters of Elizabeth of Chadres, Simon of Chadres, Helvina Osternog—and then look at what Marchioni *did* . . . Ugh.

By the way, I note that the hero's name is Steve Killiard. Some day some daring author is going to name a hero Sammy Slobilowitz or something and the readers are going to die of surprise.

I have some suggestions, Sargey. I think they'd improve SS greatly. One, cut out "This Startling War" and use the space gained thereby for an enlarged "Ether Vibrates." Two, get Wesso again as a staff artist. Three, get novels—long novels—from some of the old-timers. Four, get Paul and Finlay occasionally for the novels. Five, let's see a lot more from Ray Cummings.—*3966 Ledgewood, Cincinnati, Ohio.*

Well, hand *me* my Sunday halo and call *me* Saturn, if Kiwi Oliver hasn't a double rocket-blast salute of gripes and suggestions. Nothing critically dangerous, so I won't call a space surgeon for him.

ROASTS AND BEEFS
By Ray H. Ramsay

Dear Sarge: Once again you've published a letter of mine; and once again you have a chance to publish another. You have a darn good policy. You'll notice that my letters never appear in the poorer stf mags.

As long as the devil gives me breath, I'm going to rant at propaganda in stf. War stories have their place in literature, it's true, but when a guy is willing to go to Mars or Saturn or the thirtieth century or Lemuria or somewhere to get a little escape from the war, it hardly seems fair to smack him in the pan with the same thing when he gets there.

The immediate cause for the squawk, of course, is Rocklynne's "Pirates of the Time Trail," which contains most of Rocklynne's faults, besides being propaganda. Oh, not that some of his good points aren't present, too, but. . . .

Re "The Space Dwellers," why the-you-know is it a classic? Besides being beyond all doubt the work of a hack in style, the plot is ancient and hoary.

"The Monkey and the Typewriter" had its points—filed off to be sure, but they were there just the same, as I discovered during the sixth reading.

Seriously, despite a certain fairness of plot, "Secret Weapon" was rotten.

"Do you call it civilized," the pirate asks, reasonable and rightly, "to send a man to the mines of Oberon? To force him to dig uranium out of the frozen ground and breathe poisonous air and be fed with food that's not fit for pigs?" Which the reader is supposed to agree is civilized after reading the hackneyed futile cant of the hero's reply.

"Some men deserve it . . . Any punishment you received was small indeed compared with your crimes." And also: "Your methods were discarded two hundred years ago—along with a man named Hitler."

I ask you, as an intelligent and decent human being, whose methods the speaker was justifying?

Are you sure that Joseph Farrell isn't Kuttner? I didn't know that anybody but Kuttner would write anything as inhuman as that.

Turning to pleasant subjects, your Fall ish sports a really beautiful cover. As to inside illustrations, why should a superb artist like Finlay draw junk like rocket ships, that any hack could do well enough?

Say, how's chances for a Zolne Rowish cover? That guy used to do pretty well on the Fiction House mags, but lately he's disappeared, and may be in the army. If not, how about giving him a whirl?

Don't bond salesmen ever get any new ideas? Even a front-rank author like Dos Passos writes his message for all Americans like any newspaper hack.

Now to close by wishing Monroe Kuttner luck in his rocket project and Gene Hunter no luck in his project of a very different kind, and to remind dear Sargey that whenever he sees this old familiar scrawl he'll know that there's one more man on the Sarge's chest. Yo ho ho, and a bottle of Xeno.—*Necho, N. D.*

After which breezy and slightly woozy barbecue, we will tear out a red number eight coupon and solemnly paste it on the forward port of the control room. North Dakota? Uummm—isn't that the state where they distill tequila out of rattlesnake oil? Okay, let it pass.

FALL ISH DELISH
By Robert Scott

Dear Sarge: I am about to report on the fall issue of S.S. so plug up your ears and have your Xeno jug handy.

The cover isn't bad, but why not put the guns on the time-ship in bubble turrets? At least I didn't have to wear sun glasses when I bought this ish.

Now for the stories!

1st comes "The Space Dwellers" which was and still is really a super duper STF yarn.

2nd is "Pirates of The Time Trail." Rocklynne did a fine job on this. "Secret Weapon" placed third with "The Typewriter and The Monkey" bringing up the rear.

I agree with W. S. Burgeson on trimmed edges. Most people buy a mag for what it contains, not for the trimmed edges.

Well, since my Loony bird just stuck its beak in the door and announced that it's time for my pituitary extract, I bid you adieu.—Respectfully. (?)—*2420 W. Jackson Blvd., Chicago, Ill.*

Short, sweet, and to the point. The old Sarge will take a couple vitamin globules with you, Kiwi Scott. I don't care for trimmed edges myself. Just invert a spare rocket sleeve over the head and let it settle down to the ears and then use a blow-torch to singe off the fuzz that sticks out below this high-tide mark.

To get further, please.

OF THIS AND THAT
By Jay F. Chidsey

Dear Space woof—(If anyone but Hunter gets this I won't believe it.)

Well, once more STARTLING STORIES has come into my life. Don't look so sad, my dear Sergeant; I was about to commit suicide.

Wellll, at last, a SS cover that more befits a stf mag rather than a LIVELY HORROR YARNS mag, or BEAUTIFUL BABES IN DISTRESS. This time the cover was quite good.

PET PEEVE. Seeing a picture and caption in the beginning of the story that quietly gives away what the author has been trying to build up—suspense. All the time the author is asking "Are the Martians hostile, or do they mean peace?", there is a pic from Chap. XVIII or somewhere, showing a Martian space ship attacking an Earth couple, and the horror saying, "Blast you, Rudolf Rassendale, you told the Marts where the Uranium deposits were, but I'll get you!" Rassendale, the while being a friendly German Scientist the first half of the story.

HURRAY FOR RAY, says Saturn, who (Ray Ramsay) among other things invites Gene Hunter out behind the aft tool room. As Hunter's second, I accept on three conditions: First—the match be held on my ship the IPPlaneteer. Second—no space suits, ray guns, or any other kind of defensive or offensive weapons be used. (This includes everything but trunks, sox, shoes, and gloves.) Third—Ramsay and his second, and Saturn, as Ref. dressed all alike, will wait 20 minutes at the ring before Hunter arrives. The fight will be held in space . . . on my

ship the open DECK is directly behind the tool room. We don't think the opposition will be so tough after 20 minutes in free space—sans oxygen.

MONROE KUTTNER—Don't let it bother you. . . . They called me rocket ship for a while, too. I'm still alive, healthy, and have a heck of a lot broader view of things than the "Realists" who make fun of fantasy. What's your fuel . . . oxy-hydrogen? Maybe the old space dog would like a little discussion of rocketry in ETHER VIBRATES. Who knows? Maybe he can *read*.

THE SPACE DWELLERS at 3.8 was your best story.

Rocklynne's PIRATES might be called back by our "intellectuals." It might also be called "Cheap Blood and Thunder." I might even call it that myself . . . but I won't . . . it was pretty good. 3.4.

MONKEY AND THE TYPEWRITER—3.6.

SECRET WEAPON—Pluttttt—(raspberries, at 40c a qt.). Not so good—2.5.

Might I mention in passing that the best thing to do to things like this letter is to print 'em, and get it off your conscience . . . onto mine.—*Green Springs, Ohio.*

Y'know, Kiwi Chidsey, you almost have something in your pet peeve. The old Sarge is such an old maid that he even likes to see pictures placed in their proper sequence throughout a story—and placed in the general vicinity of what they illustrate in the text. In fact, there are a lot of crazy ideas the old space dog has personally that you junior peelots never get a smell of. But there is also such a thing as exigency of make-up, advertising appeal, illustrations which are eye-catching and not too static (full of inane do-nothing, to you) and a thousand things to be taken into consideration that you and Hamlet and Horatio never took into account. I—oh, let's skip it.

INFORMATION PLEASE

By Van Henry Splawn

Dear Sarge: I simply must rave over the Fall issue of STARTLING STORIES. It is perfect.

(Continued on page 119)

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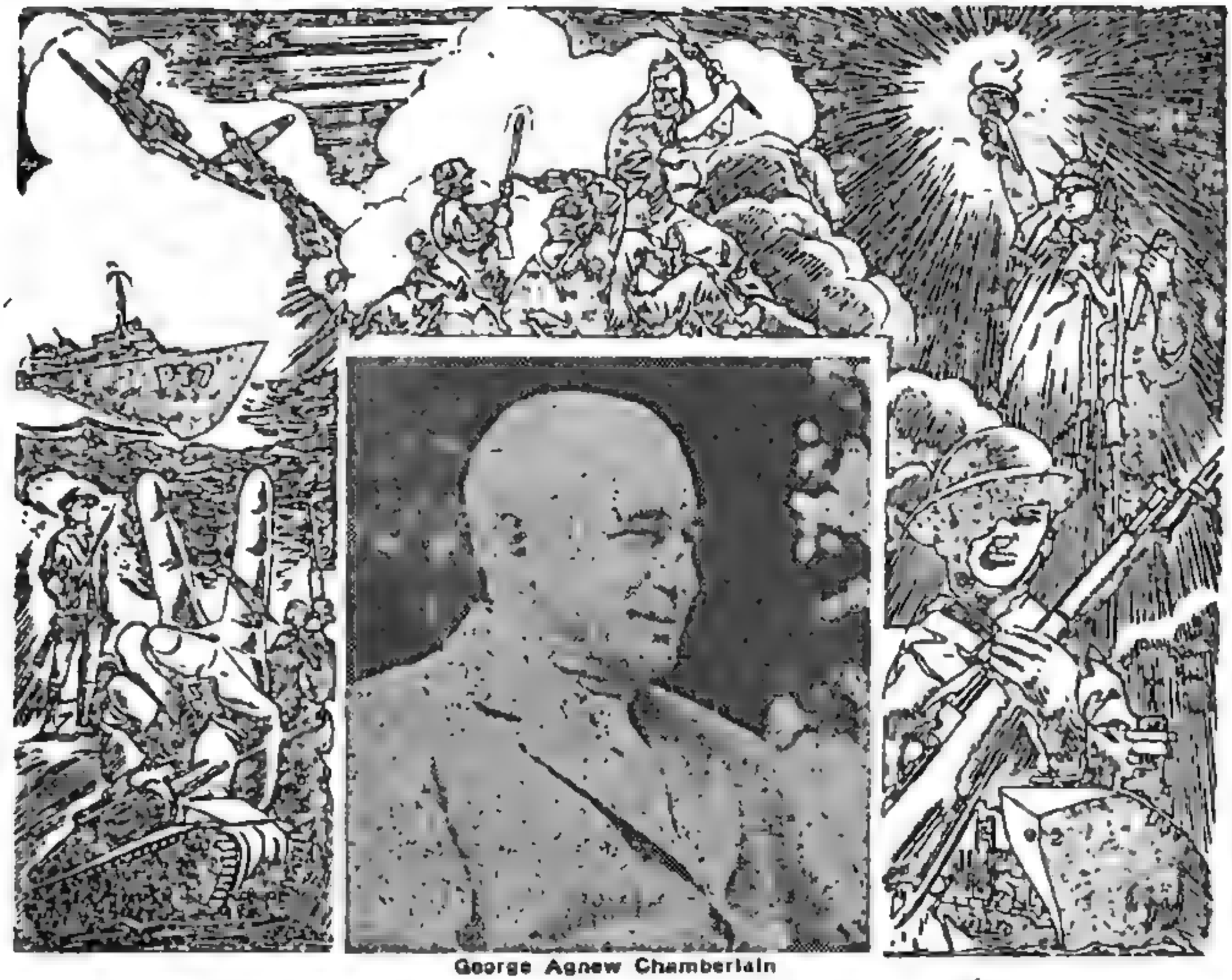

George Agnew Chamberlain

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By GEORGE AGNEW CHAMBERLAIN

Author of "Bride of Bridal Hill" and Other Famous Novels

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Buy War Bonds and Stamps!

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THE ETHER VIBRATES

(Continued from page 117)

Rocklynne really rang the bell with PIRATES OF THE TIME TRAIL. Every detail went to please me. THE SPACE DWELLERS was much better than the Gallun yarn last issue. The other shorts were good—for nothing.

I clipped out the photo of Ross Rocklynne and put it in my SCIENCE FICTION album. It comes under the heading of FAMOUS STF AUTHORS, in which I have pictures of Ray Cummings, Noel Loomis, Raymond Gallun, Hal K. Wells, Norman A. Daniels, Edgar Rice Burroughs, and many others.

Now for Bergey's cover. Oh, boy! I didn't know he had it in him. It goes in my album under the title COVER PAINTING OF THE MONTH.

THE GIANT ATOM, scheduled for next issue, sounds intriguing. The Hall of Fame yarn—THE LAST WOMAN—ahem—will have my attention. And now for some information please.

When will we have another story by our friend, Oscar J. Friend?

Has Edmond Hamilton quit writing science-fiction?

Did Noel Loomis write a sequel to CITY OF GLASS?

When will we see another novel by Hal K. Wells?
—*305 West 16th Street, Pine Bluff, Ark.*

Well, Pee-lot Splawn, you certainly use a splatter-gun to shoot your questions. Occasionally Oscar J. Friend comes up with a scientifiction story, either under his own name, or the pseudonym of Owen Fox Jerome. You'll find a short story by Friend in the August issue of THRILLING WONDER STORIES, and a short story by Jerome in the Summer issue of CAPTAIN FUTURE. And there'll be others yet to come. The same thing applies to Edmond Hamilton. Shorts and novelets from his typewriter appear now and then in one or another of our three science-fiction magazines. Yes, Noel Loomis has just about completed a sequel to CITY OF GLASS, and we may have some dope on that any time now. Hal K. Wells writes us that he doesn't usually write science-fiction and rarely does he do long stories in this medium, but that he will cook us up another one when he thinks he has a good idea.

So if you will now crawl back into your astral play-pen and resume the sorting of the big comets with bad spots on them, we'll get along with the mail.

FROM COVER TO ADS

By Raymond Washington, Jr.

Dear Sergeant: To be simply audaciously original, I'll start with the front cover. This is the best one in a long time. The BEM's are conspicuous by their absence, as well as the damsel in distress, half naked and with a horrified expression on her painted face as loathesome tentacles engulf her, and the hero, with his mouth open in excitement, clutching a proton gun. This, indeed is a pleasant surprise. The restrained colors were welcome and well contrasted, and the cloudy green sky heightened the melancholy aspect. But I have one serious kick about the cover. Look at the mess of print in the lower left-hand corner. I can't stand it. I boil inwardly. (When you receive my next story for the Amateur Contest: I didn't mean it.) Think, though, how nice a thin, clear-cut plate in the lower middle section would have looked: PIRATES OF THE TIME TRAIL, by Ross Rocklynne. When I get to be editor of my proposed magazine, UNLIKELY ADVENTURES combined with SILLY, SHOCKING SCIENCE STORIES I will show you what I mean.

Rocklynne's piece was enjoyable reading, but I've noticed that any story, no matter how well conceived and begun, tends to degenerate into a welter of blood & action as the plot progresses. This is no fault of the writer, and helps him to maintain suspense, but it beats me how any fictional hero, no matter how mild and timid in "real life," when picked up by futuremen and transported to far fantastic worlds, begins to act like Scarface and by the

[Turn page]

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close of the story, has shot without compunction dozens of guards, and makes love to the heroine like a caveman. (This latter criticism doesn't apply to Rocklynne's hero, Killard; he was engaged in the business of killing when first "picked up.")

I experienced that familiar feeling of broadening horizons and opening doors of thought to untravelled vistas, so integrally bound up with science fiction, as Rocklynne began to expound and expand his theme of time-branches and co-existing universes. I became emotionally involved, too, and lived Killard's life with him; I shot down scores of BEM's on worlds of might-have-been; I faced the frenzied features of Helvina Osternog (*Drang nach, Oster!*) (terrible, but I couldn't help it), and I flitted through the star flecked cosmos.

In conclusion, I liked Rocklynne's novel. Primarily adventure, but entertaining absorbing stuff. I thought some of the author's theories, particularly the time-branch ships and their mechanics, very ingeniously worked out.

"The Monkey and the Typewriter" is nothing to drool over, but it evidently fitted the editorial requirements and that's all that matters.

Gallun's *Space Dwellers*, the Hall of Fame Classic, was screamingly funny in spots. Namely this:

"'In God's name, who are you?'

"'The other smiled slightly and raising his hand he pointed upward.'

"'I am Othaloma of the Stars'" . . .

"'I was under the tutorage of a marvelous old genius named Grooga. In his younger years he must have been handsome but now he was "Grooga, the Hideous."'"

Pardon my roaring laughter. Fans have become tremendously blasé and cynical since those naive old days when science fiction was still a baby. Seriously, it's good to get a gander at the first efforts in our favorite field of literature.

"Secret Weapon" was okay as a diverting filler. Finlay's illustration is the best in a long, long time, done in his inimitable style, and exquisite as are most of his drawings. Could you sell me this original? ('Tis stupid of me to ask, of course, but—)

The departments were all good, especially ETHER VIBRATES, THRILLS IN SCIENCE, and MEET THE AUTHOR. (Rocklynne is one of my favorites.) Heh, heh, heh . . . see where Joe Blow, er, Joe Bonomo, is giving C. Atlas some competition. This kills me!—*Live Oak, Florida.*

Not being personally acquainted with either C. Atlas or J. Bonomo, Pee-lot Washington, the old Sarge will have to stick to astrogation and let you kiwis figure such things out for yourselves. There's argument, pro and con, on the science-fiction of yesterday. We don't know. That's why we reprint a Hall of Fame story every issue for you junior astrogators to growl over. Now get back to your swing shift. But you might come around on one of your off watches, and the old Sarge will give you a lesson in inter-dimensional judo. (Heh-heh, yourself.)

PLEASURABLY SURPRISED

By Joseph Hedgpeth

Dear Sarge: I have just finished reading the latest issue of STARTLING STORIES, and I must say I am pleasurably surprised. It is the first issue in a long line of flops that rated tops.

1. "Pirates of the Time Trail" (Ross Rocklynne is really good).
2. "The Monkey and the Typewriter" (a very good short).
3. "Secret Weapon" (So-so).

"The Space Dwellers," in my opinion was mere piffle. Say, Sarge, would you tell this ignorant and unworthy person the exact meaning of Xeno? That devilish word rattles around in my mind when I sleep, when I eat, follows me to my job, hounds and astounds me.

Well, I have scribbled enough literary punk for now, except that S. S. still is the best among best. —*Route 9, Box 88, Charlotte, N. C.*

Again that grisly question rears its head. What is Xeno? And once more, the old Sarge will try to explain. Xeno, my child, is the concentrated essence of vibrant life, the very core of blissful dreams, the quintessence of bliss double-distilled from a maiden's heart, the epitome of all human longing, the acme of

all human achievement, the pineapple of politeness—and a pretty good remedy for sunburn and chiggers. It is guaranteed not to space-warp, crack or chip your tooth enamel, talk back to the cook, flirt with the housemaid, rip or ravel at the seams, run down at the heels, or smell bad in the summertime.

In short, Xeno is such big stuff in the spirit world that a Zombie by comparison is only a second-hand spook in a Bronx barroom, and Sergeant Saturn drinks it as a beverage of Lethe so he can forget what you junior astrogators say.

BERGEY'S INFIRMITY

By Bill Holmes

Dear Sarge: As this is my first letter I looked over the other missives well before sending it. I found there is a right way and a wrong way to write a letter to our dear (?) old sarge. So—

1. The cover is putrid—better we should have a blank page yet.
2. The novel is no good.
3. The novelets are no good.
4. Everything is terrifying except "The Ether Vibrates," and that, dear Sarge, is not your fault. Now that I have followed tradition and become a bonda-fide junior astrogator, I offer my own opinions, to wit, heretofore, etc.

Why does Bergey have such an infirmity for purple, red and green? I admit it's colorful and attracts attention, but think of the poor druggists who have to spend hours in the same room with it.

Seriously, the novel is good; as a matter of fact I go on record as saying it is the best I've read in this magazine for quite a few months. Rocklynne is just about my favorite stf writer, which is probably not a great honor.

Taking the short stories (I believe I called them novelets before)—"The Monkey and the Typewriter" leads the list. It isn't great (far from it) but it passes the time. "The Secret Weapon" left me blank (it probably found me blank, too). While, if "The Space Dwellers" is an example of stories in the "good old days"—phooey to the "good old days."

Using the incomparable 10-1 rating, I present:

Pirates of the Time Trail—7.5.
The Monkey and the Typewriter—6.5.
Secret Weapon—4.5
The Space Dwellers—2.5.

If these ratings seem low I will explain: I grade on the medium. 5 points is an average story; 7.5 is exceptional and any higher is truly a classic.

In my own humble way I agree perfectly with Burgeson that trimmed edges are not necessary, but I do believe all books should be double-stapled. —*1713 First St. S.W., Cedar Rapids, Iowa.*

There are several schools of thought, Kiwi Holmes, on covers—as well as on many other things which go to make up what we fondly call science-fiction. There's no use arguing with the old Sarge about it; I have a few complaints of my own, and what does it get me?

You have something in that double-staple idea, but do you know how much metal the popular magazines are saving the government by the present style of using only one staple? Lacking the exact statistics at this moment, and the Scientifacts editor being out to lunch, I can tell you that it saves enough staples to stitch a double row around the world and brad all the Japanazis end to end, in which position they would look very funny and downright conspicuous. So we'll get along with one staple per magazine for the duration.

Next case.

WHITHER THE SPACE LINGO?

By Joe Kennedy

Dear Sarge: When I first looked at the cover of the fall S.S. I didn't believe it was Bergey. Where was the eternal triangle of hero-dame-monsters? Anyway, he did a really fine job. Let's have more space-ships and machine covers and less people that

[*Turn page*]

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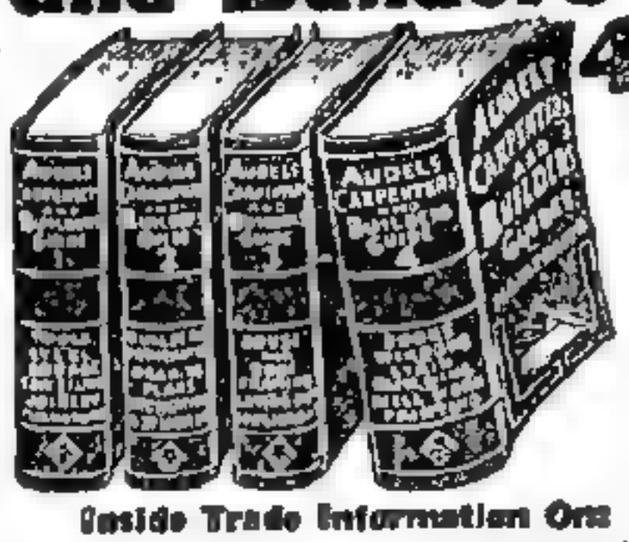

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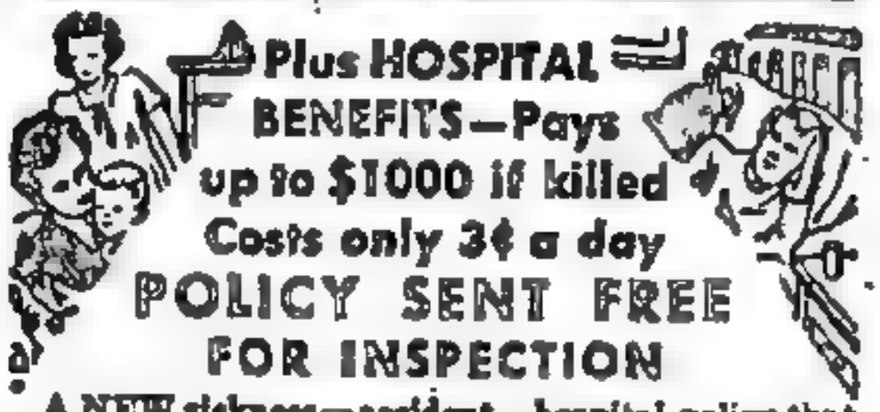

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Great galloping Plutonian butterflies! You actually printed that horrible poem I sent you! Honest, Sarge, after it was in the mail, I was really ashamed. If STARTLING drops to a circulation that can be counted on the fingers of one hand, you'll know the reason why.

Oh, yes. The stories.

1. *Pirates of the Time Trail.* Hooray to Ross Rocklynne for a brilliant plot. Didn't think it was written too well, though. . .

2. *The Space Dwellers.* Good, but I dunno as it was exactly a classic. Say, what does the "Z" stand for in Raymond Z. Gallun's name?

3. *Secret Weapon.* Short and sweet.

4. *The Monkey and the Typewriter.* A fairly passable plot, but the title of it tells how it must have been written.

Artwork: EEEEEEK! NO! TAKE IT AWAY!

By the way, Sarge, there are a lot of Jerques who don't care for your space talk. *Well, I do!* Lay it on, Sarge. You wouldn't be the same ol' Sergeant Saturn without the Solar lingo.—*84 Baker Ave., Dover, N. J.*

Kiwi Joe, your encouragement is delightful about the space lingo, but you propound a question the answer to which I can only guess. The Z in Raymond Gallun's name must stand for Xeno—phonetically, that is. Anyway, I'll ask him for you the next time I have an opportunity.

Speaking of authors, here's a pleasant and informative communique from the author of this issue's Hall of Fame Classic.

AFTER TEN YEARS

By Thomas S. Gardner

I was pleasantly surprised to see your announcement in the Fall, 1943, Startling Stories, that your next Hall of Fame Classic was to be my story, "The Last Woman," from the April, 1932, *Wonder Stories.*

There is an interesting bit of history connected with the story. I wrote it because I did not like the theme of a story by Wallace G. West called "The Last Man." The theme of "The Last Woman" was rather strong for many of the feminine readers as they claimed that I treated the last woman too harshly, although justly. On the other hand, the men readers seemed to like it.

The comments on my story were rather interesting the first time it appeared, and I am looking forward to its reception after ten years if any comments are made. The world has changed a lot in ten years and it is possible that viewpoints have changed also, and it must not be forgotten that a new generation will be reading it for the first time, too.—*Kingsport, Tenn.*

Thank you, Author Gardner, for your comment, and I hope you see some flattering things said in this department about THE LAST WOMAN. I am sure you will find a few *flattening* remarks, for these little ogres are no respecters of anything—the little iconoclasts.

I have now one of those ethergrams that are so few and far between—a flash from a gal kiwi. Take over, Kiwi Clara!

SCIENCE FICTION OKAY

By Clara Hildreth

Dear Sarge: I haven't been reading Science Fiction Mags very long, but I am very fond of them. So fond, in fact, that my husband is always saying words (under his breath, of course) because he thinks it is a waste of time to read them. What prompted me to write was the way some of these guys go on. Personally, I don't care whether my letter is printed or not, but I wanted to tell Kiwi Kincade, as you call him, that people have other ideas for writing than just to see their letters in print. Anyhow, look at him. I'll bet he would have been mad if his hadn't been printed.

Don't listen to those "trimmed edges" guys; they're dizzy. Who can read a trimmed edge? As long as we can see the words that's all that's necessary.

The next one to comment on is the fellow who says he never reads the rest of the stories, only the

novels, and he don't like CAPTAIN FUTURE. Ask him why he even bothers to read a science fiction mag. He really does need some up-to-date information. But do you honestly think it would do him any good? I won't tell you what I think; I'll let you guess. Then he says you talk too much, but I really enjoy your answers. You're o.k. and surely know how to give back the replies. More power to you. Some people from Missouri may not think your mag very good. But don't put me in their group. I couldn't help it that I got marooned here. Must have been love or something, 'cause I'm from Colorado where they know a few things (I said a few, not meaning to brag, of course. Should I say Hah hah?)

I think the stories are all fine and the illustrations are, too. The Hall of Fame stories are special with me.—*308 Main St., Rolla, Missouri.*

No foolin', honey chile, you could even blast the old Sarge down with Captain Future's proton gun, and get nary a flicker of resentment in reply. But, shucks, instead, you had to go and say the nicest things about science fiction and the old space dog. More and more gal readers are discovering science-fiction, and that's the best sign or good omen the old Sarge can think of.

If you can only get your running mate to read a couple of science stories, I'll bet we'd have him hooked, too. Don't think that folks from Missouri are slow, Kiwi Clara. They catch on pretty quick. (Sergeant Saturn is from St. Louis.)

We can dispense with the wild applause from the junior pee-lots in the dog watch. Pipe down with those catcalls while we consider an S.O.S. from Wisconsin.

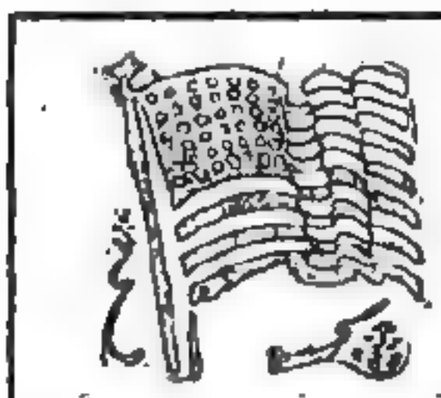
A PLEA FOR BACK NUMBERS
By Richard Speltz

Dear Sarge: For quite a number of years I have been an avid reader of STARTLING STORIES, and of your companion magazine, CAPTAIN FUTURE. Although I read every other SF magazine on the market also, I must say that none of them can quite parallel your superb choice of stories. The recent issue of STARTLING STORIES was a trifle disappointing, though; one reason is that it was too short. Make your stories longer, at least one hundred pages. Also, infuse a little more fantasy.

The paramount purpose of this letter however, is a plea to the readers! There are three magazines that I would like very much to gain possession of, and I would be willing to pay for them. Two of them are issues of STARTLING STORIES, featuring: "Five Steps to Tomorrow," and "A Million Years to Conquer." The third is an issue of CAPTAIN FUTURE, featuring: "The Lost World of Time." Will any person possessing one or more of these magazines please contact me at once?—*515 West Main St., Sparta, Wisconsin.*

There you are, pee-lots. Can anybody help Kiwi Speltz out? If you don't get any answer, Kiwi Speltz, you might find the magazines you want in the library of one of the SFL chapters in your general neighborhood, and you might be able to borrow them long

[*Turn page*]



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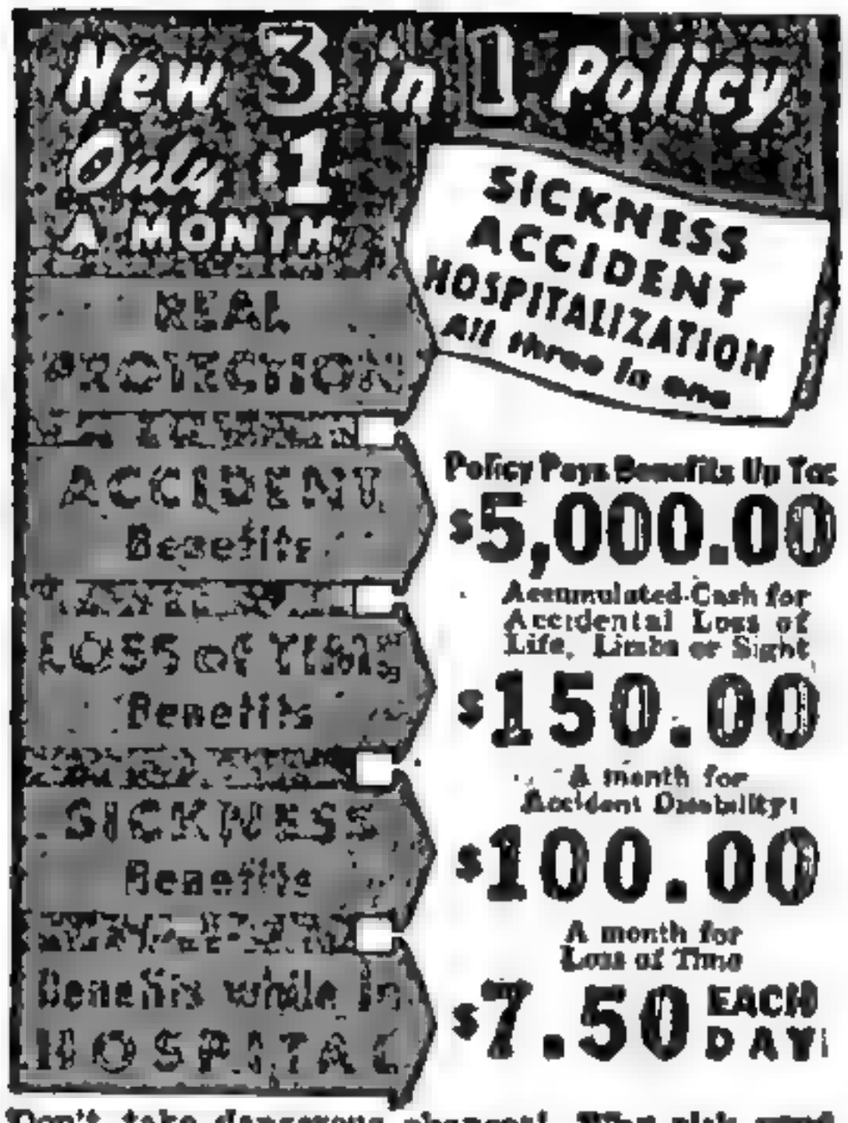

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RENAISSANCE

By Bill Stoy

Dear Sarge: Perusal of the Fall STARTLING STORIES has almost completed a reversal of my opinions anent the Thrilling stf publications. Not only has TWS of late become a vehicle for delightful, entertaining and mature fiction, but now STARTLING, too, is undergoing a metamorphosis of the same sort. Is there nothing constant in this changing world upon which to base standards? No longer can I count on TWS and STARTLING featuring hack month after month. Even you, Sarge, have shown a certain improvement in the quality of your comments.

My faith in the order of things has been shattered! The situation is deplorable . . . my evenings have been reduced to crying bitterly into tankards of Xeno mourning despairingly over the complete flux of things. . . .

Don't ask me if Rocklynne's "Pirates of the Time Trail" is a classic or not. I wouldn't know! All I know is that I liked it, and found it very interesting—which is satisfactory enough, and sufficient. But, two main reasons why the yarn appealed:

First, the plot. The idea upon which the plot is based is not completely new, of course, but it is sufficiently different, developed along somewhat original lines, so as to be absorbing. The plot, too, had certain twists and refreshing variations, such as boy-meets-two girls instead of merely boy-meets-girl. Second, Rocklynne showed more care in writing, apparently expending more time and effort in choosing his words and stringing 'em together. He got rid of much of the hack, did a nice job in semantics, and wove a suspenseful and entertaining bit of fiction. Not bad at all.

Satisfactory, Ross? Then how about removing the gun point from the small of my back?

The short stories contributed little, if anything, to STARTLING'S improvement. "The Monkey and the Typewriter" started off nicely, but dwindled off into the usual Grade B short. "Secret Weapon" had no "meat" to the tale. And while Gallun's "The Space Dwellers" could have been worse, it could also have been better. Definitely, I side with those fans who believe that longer tales and novels would make far superior Hall of Fame stories, the better shorts having been just about exhausted. WS published some neat yarns in the period '30-'35, many of 'em novels or novelets.

Bergey did it again with another nice cover. Not too garish. And a rocket ship, that like Finlay's interior pic, looks more or less like a reasonable facsimile thereof. Marchioni's drawings remain as harshly angular as ever, while Isip is a welcome addition.

Congrats to Miss Lee and Mr. Kennedy for two interesting letters in The Ether Vibrates. The other features remain static, in the state of "fairly good."

About here, the old Sarge should be due for a rather thorough lambasting. But, seeing that your verbiage has become slightly more sane and sensible, we'll let it pass this time. Just keep toeing that line, Saturn, mon sargent!—*150-92 Burden Crescent, Jamaica, N. Y.*

Anyway, it's nice, Kiwi Stoy, that you find both THRILLING WONDER STORIES and STARTLING STORIES on the upswing. You should take a swing around the Moon with CAPTAIN FUTURE some time. And isn't it too bad that I can't get all you peelots to agree that our three magazines are good—at the same time?

Oh, well, who wants perfection, anyhow? It's deadly monotonous.

Wart-ears, open a fresh jug of Xeno. You can put the aspirin away for next trip. This has been a singularly placid voyage. (And I'm a double-dyed space-ape, if I can understand it. I think the junior astrogators must be sick.)

Nevertheless, happy spacings, kiwis, until next voyage. Now, rip this issue to pieces gently, while the old Sarge takes a nap.

—SERGEANT SATURN.

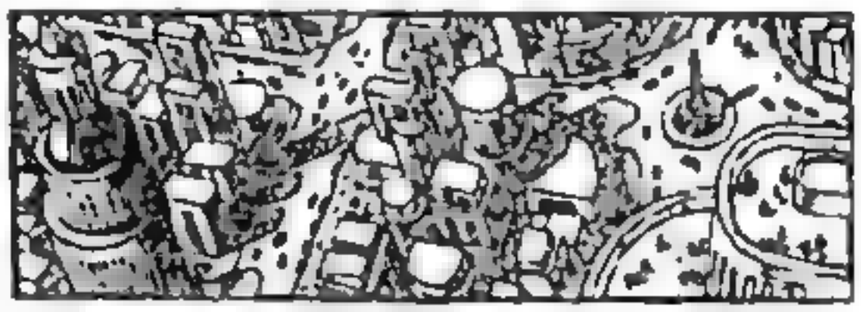
REVIEW OF THE SCIENCE FICTION FAN PUBLICATIONS

By

SERGEANT SATURN

o

WELL, here we are almost at the turn of the year—literally speaking—and the old Sarge has a last fling, poke, gentle jibe, or ogle at the fanzines for 1943. Considering everything, and that embraces everything from the war down, the old space dog has seen some pretty good fanzine stuff in



1943. We'll sort of wind up with a blaze of glory with the mags reviewed this issue.

Without wasting any more time, let's knock the neck of a Xeno jug and get started. First case.

THE ACOLYTE, 720 Tenth Street, Clarkston, Washington. Editor, Francis T. Laney. Quarterly. 35c for four issues.

Hmmm—thirty-two pages of standard white with single-spaced black ink—not counting the cover. Ah, the cover! Now that's something I revel in. A drawing that I thoroughly misunderstand. Rays of light made of gila monster skin radiating out from the upper left-hand corner of the sheet across a magnified drop of water from a municipal swimming pool. All kidding aside, it's a good fantasy drawing. And the subject matter is as much professional as otherwise. Nice contents page and neat headings and illustrations, plus a drawing by H. P. Lovecraft. Nice going, Editor Laney.

THE COSMIC DIGEST, Live Oak, Florida. Editor, Raymond Washington, Jr. Volume One, Number One—no set schedule as yet.

A two-sheet organ of The Cosmic Circle Society. Maybe it will grow—if the others will get busy and help the perspiring editor. Good luck, Editor Washington.

EIGHT-BALL, 9 MacLennan Ave., Toronto, Ontario, Canada. Editor, Beak Taylor. Bi-monthly. 5c per copy, 6 copies for 25c.

Well, well—number three of a fanzine from Canada. Sixteen pages of black and single-spaced pica type on standard white stock. Severe but neat line headings, and a line drawing on the cover of a superman of the future in a perambulating bathtub. Not much of a contents page, and no statement of ownership or publication that the old Sarge could find. (The dope given above was gleaned from a letter, smarties!) The mag compares favorably with U. S. fanzines. (All of them could improve, y'know.) And from Editor Taylor's letter we also learn that with the next issue—out about the first of September—this fanzine will be known as CANADIAN FANDOM. No change in publication or rates. But we hope the editor makes up his contents page better.

FANTASY FICTION FIELD, 6401 24th Avenue, Brooklyn, N. Y. Editor, Julius Unger. Weekly. 5c per copy, 6 for 25c.

Good o'd perennial weekly. I have several copies at hand, both on yellow and on white standard-size paper, some with snapshots of magazine covers to come, and some without. Up to the combined June issue—which proves to be a giant of five sheets. You fans will be interested in Paul Carter's column of

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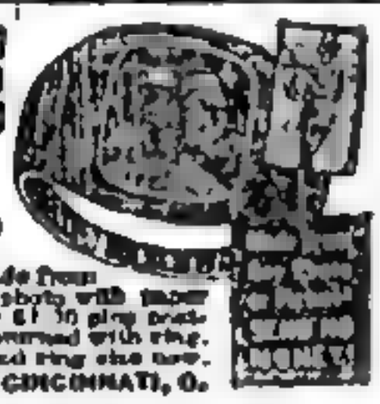

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pro mag reviews—whether you agree with his judgment or not. Smooth sailing, Editor Unger.

FANTASY NEWS, Box 7316, Halethorpe, Md. Editor, Will Sykora. Weekly. 3 issues 10c, 32 issues $1.00.

Editor Sykora, formerly of Long Island, N. Y., is doing quite nicely with his new weekly. So far it is only a two-page affair, but the indication is that it will grow. Luck to you, Editor Sykora.

INFINITE, Box 365, Newcastle, Indiana. Editor, Claude Degler. Bi-monthly. 15c per issue, 6 issues for 75c.

Well, what d'you know? Forty-six pages of stuff and such, not counting covers. Artwork in pastel pinks, blues, and greens. Nice looking contents page—including fiction, articles, poetry, and departments. For a second issue, this November number of INFINITE looks promising. The last page ad promises a hundred pages for the next issue. Also mentions artwork on page 17 of present issue. This must have been done by Adam, as it seems a rib. There ain't no page 17 in the old Sarge's copy. Oh, well, you can't have everything; that would be "infinite."

Never mind, Editor Degler—and Art Editor Jenkinson—the old Sarge will be watching out for that super-colossal issue next promised. And no pages missing, either! Understand?

NUZ FRUM HOME, 1443 4th Avenue, South, Fargo, North Dakota. Editor, Walter Dunkelberger. Occasionally. No price listed.

This is not strictly a fanzine, but the editor is weakening and figuring on putting out a scientifiction fanzine supplement. Meanwhile, this is breezy little number of four sheets, nice and neat illustrations, and clever style of running comment. Put out primarily for the boys in service, this publication fills a good niche. Carry on, Editor Dunkelberger; you're doing okay.

PARADOX, 3 Lewis St., Westfield, Mass. Editor, Frank Willmczyk, Jr. Quarterly. Single copies, 10c. Three issues 25c.

Uumm—eighteen pages of standard white stock between covers of yellow. Single-spaced but clean-cut copy. Nice contents page. Artwork on the scant side, but neatly done, what there is of it. The old Sarge particularly liked the drawing on the back page. Frank Merriwell, football coach of dear old P-U, is drawing his holstered hand-pump to inflate something. Probably the football. On the front cover the be-spectacled lad with the Willkie hair-do is dropping his all-day sucker because it has a ten-legged ant crawling on it. No wonder the boy was startled. Everybody knows that true insects have only six legs.

Anyway, the old Sarge likes the book, see? And let that be sufficient for you. Keep blasting away, Editor Willmczyk.

SAPPHO, 1299 Calif. St., San Francisco, Calif. Editors, Bill Watson & George Ebey. Bi-Monthly. 10c per copy, 50 per annum.

This is the very first issue of a new fanzine. And, fans, it is excellent for a brand new venture. Sixteen pages of standard white between smooth white covers. Cover artwork is splendid. Too much paper is wasted for the interior work and contents, but it's a relief to be out in free space again without feeling as cramped as though we were passing through the asteroidal belt. The old Sarge has the second number of SAPPHO on hand, too. And the same good word applies. This time the inside print is green on white. And the artwork by Michel and Wright is first class. (I didn't quite get the address of the mimph on the back cover of the August number.)

Carry on, boys. And say—doesn't the old Sarge recognize you two as a pair of vociferous kiwis from the black gang in the astrogation chamber? Yeah, I was afraid so. Well, you've got this SAPPHO craft started. Now keep her sailing! Good luck.

SHANGRI-L'AFFAIRES, 637 S. Bixel, Los Angeles, Calif. Editor, Phil Bronson. Published occasionally.

This seems now to be the bulletin of the Los Angeles Science-Fantasy Society. Three sheets in the wind—er—three sheets of notes about members and doings and writers and things. Only drawing in issue is a cartoon on page 5 that the old space dog doesn't understand. A hatless and coatless gent is staring at an empty baby carriage in an attitude of dismay or apprehension, and he is saying: "My God! Tendrils!" I don't get it.

Pass me the Xeno jug, Wart-ears. I'll drown my stupefaction in stuporfaction.

THE VULCAN FANZINE, Route 1, Ripley, Tenn. Editor, Lionel Innman. Published if and when. Single copies 5c, 3 for 10c; 6 for 25c.

Hold on here! There's something haywire—or should I say space-warped?—about this price schedule. Three for a dime. Six for a quarter. Uummm—oh, I see! The more you buy, the less you get. Okay, gentle editor, the old space dog will take his one copy at a time. Never mind, that's just a slight miscalculation which could happen to anybody. In astrogation, where we use telephone numbers for figures, a slight margin of error like this means nothing for a couple of light-years, and then—oh, boy!—where are you?

Anyway, VULCAN is okay if it is slightly on the blurry side as to print. (Purple ink on standard white stock.) I have two issues here at hand—24 and 28 pages respectively. Looks pretty good. The editor is also the artist and printer. Talk about your one-man bands!

Keep right on rocketing away, Editor Innman. The old Sarge is on your side.

Which winds up the cargo of fanzines for this issue and for this year of 1943. All in all, a pretty fair batch of stuff and such for one dizzy swing around old Sol. Send in your fanzines as early as possible, you editors, if you want them reviewed currently in this column.

Happy new year, my merry little ink-slingers!

—SERGEANT SATURN.

THRILLS IN SCIENCE

(Concluded from page 113)

you, but it meant a great deal to science and theory that day back in 1658. It meant that science and the scientific method of research had gained their first great victory.

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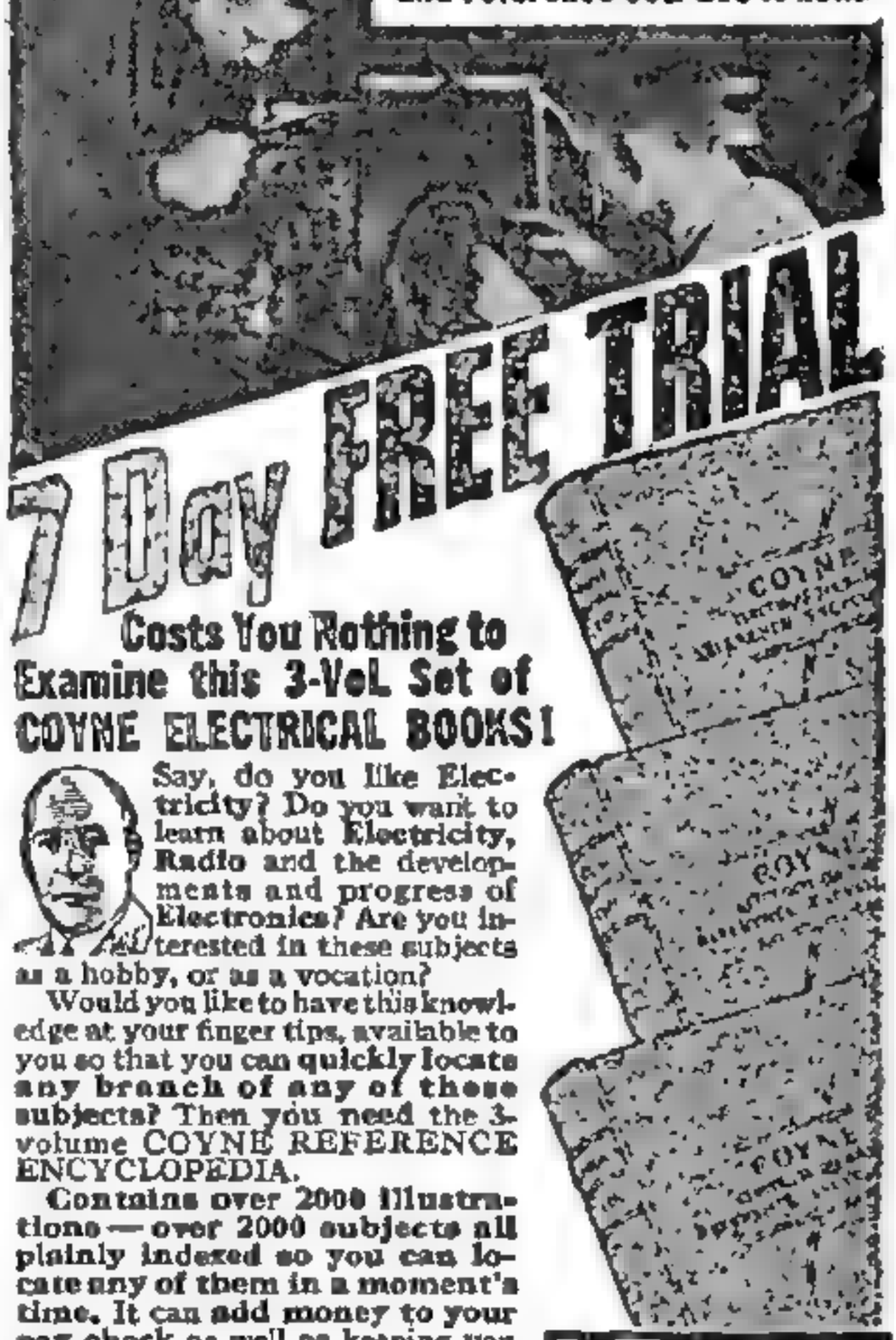

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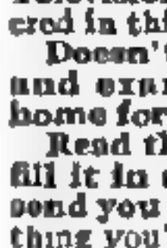

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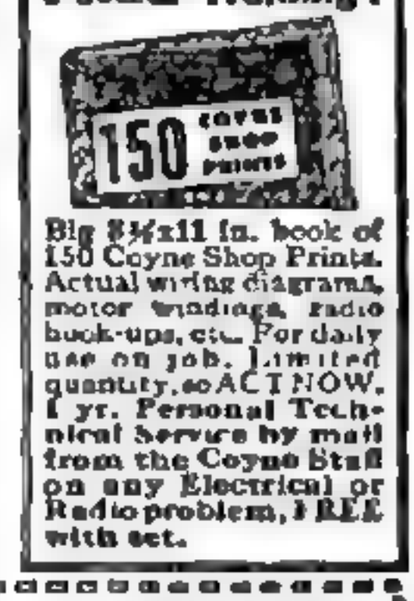

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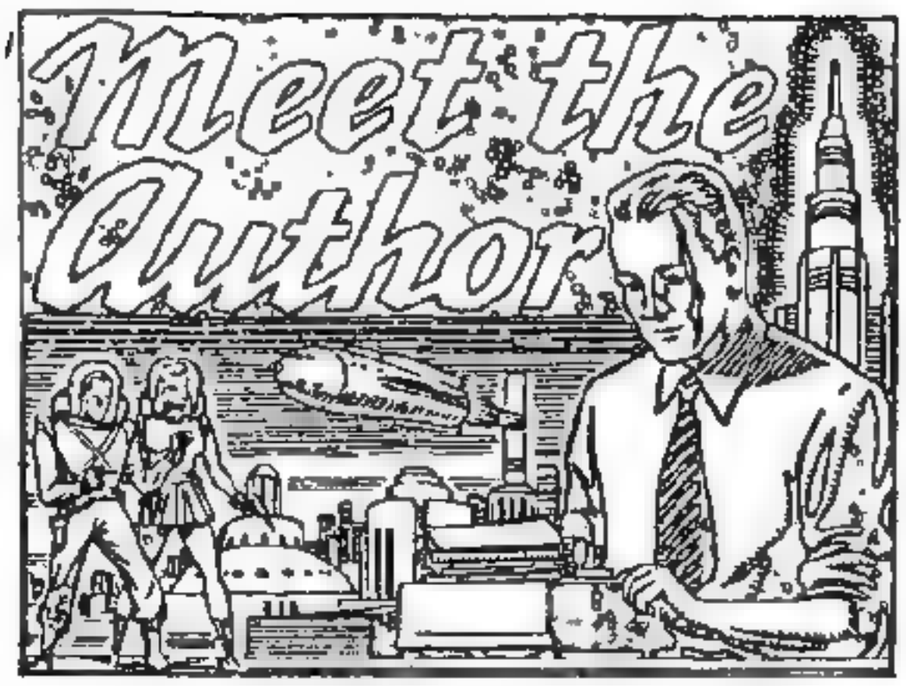

Malcolm Jameson Tells Us Just a Little About Himself

WE HAD a tough time getting an autobiography from Malcolm Jameson. In fact, we didn't get it. He said he gave out one a while back and it was received as an interesting but unconvincing bit of fiction.

What irked him most was the reader who added up all the jobs he had put down as having held at one time or another and computed from them that Jameson must now be a hundred and twelve years old. This figure, he insists, is a gross exaggeration.

However, we happen to know that he has been around some, and also engaged in a surprising variety of occupations. He has ranged

Malcolm Jameson

from the Equator on the south to the Arctic Circle on the north, and from Hong Kong to Copenhagen from east and west.

He thinks his lowliest job was peeling spuds in a San Francisco hash house, and probably his most exalted one that of Naval aide to an ambassador to a foreign country. He hates selling, of which he has done a lot; and likes seafaring, of which he has done still more. And unless he has done an awfully elaborate job of faking photographs and documents, we believe every word he told us.

The wanderlust still has him in its grip, but he says that a dozen years of dragging a growing family across oceans and continents finally braked him to a temporary stop. So he tried his hand at writing, chiefly for the reason that it was a thing he had never done before.

"Science-fiction and fantasy is the most fun of all," he told us, "because you can tamper with facts. Not that the sky is the limit, for it is not. In the best yarns you are allowed only one cockeyed assumption; after that you have

to stay in bounds, and that requires as much knowledge of real science as can be obtained.

"For that reason I do an enormous amount of what is often called heavy reading, though I do not regard it as such since I enjoy scientific books more than most fiction. The formula that I use—if you can call it formula—is not original by any means. H. G. Wells brought it to a high point of perfection and I have observed no noticeable improvement on it since. The key to it is the one word 'supposing.'

"*Supposing* you could make yourself invisible; *supposing* you landed on a planet where there was no friction; *supposing* ghosts, fairies and demons really existed; *supposing* your perceptive organs were such that you heard color and saw radio waves . . . then what? Working out the sequel is not as easy as it may seem. I have a notebook full of such 'supposings' some of which have such far reaching implications that I don't know where to begin. That is because the effects of some contingencies are utterly unpredictable. Even the imagination of a confirmed science-fictioneer has its limitations."

Which brings us to THE GIANT ATOM. One day Jameson dropped in, and we were chewing over the possibilities of a new yarn when the matter of a wild atomic fire came up.

"Nope," he said, "that's out. It has been done before, and well done. The trouble with it is that it has only two possible outcomes. One is where the undaunted hero stifles the supposedly uncontrollable fire, which nullifies the thing from the outset; or else the fire goes on unchecked and burns us all up along with our world, which is no solution at all."

And that seemed to kill it deader than a doornail. But the problem must have bothered him, for about a week later he rang up. He had doped out an unquenchable, all-devouring fire that not even his hero could make a dent in, but assured us it would all come out in the wash.

"Nope," it was our turn to say. "We don't want any Noah's Arks."

Well, it wasn't one of those. The fire burned viciously on and the human race, worried but hopeful, sat tight. The outcome? If you've already read THE GIANT ATOM, you'll agree there is more than one way to put a fire *out*.

THE SIDEREAL TIME-BOMB

(Concluded from page 109)

time when Earth had been expected to meet its doom, she clasped him firmly by the arm, and, looking up at him with that charming smile of hers, confessed, "Do you know, Roddy, sometimes when you were up there on Orcus, I used to have the most terrible nightmares!"

"And so did I, Betty. But Orcus, as you know, was the Roman name for Hades. And after Hades it is good to be in Paradise."

The bright beaming glance which she cast me was my sufficient answer—and sufficient reward for all my trials.

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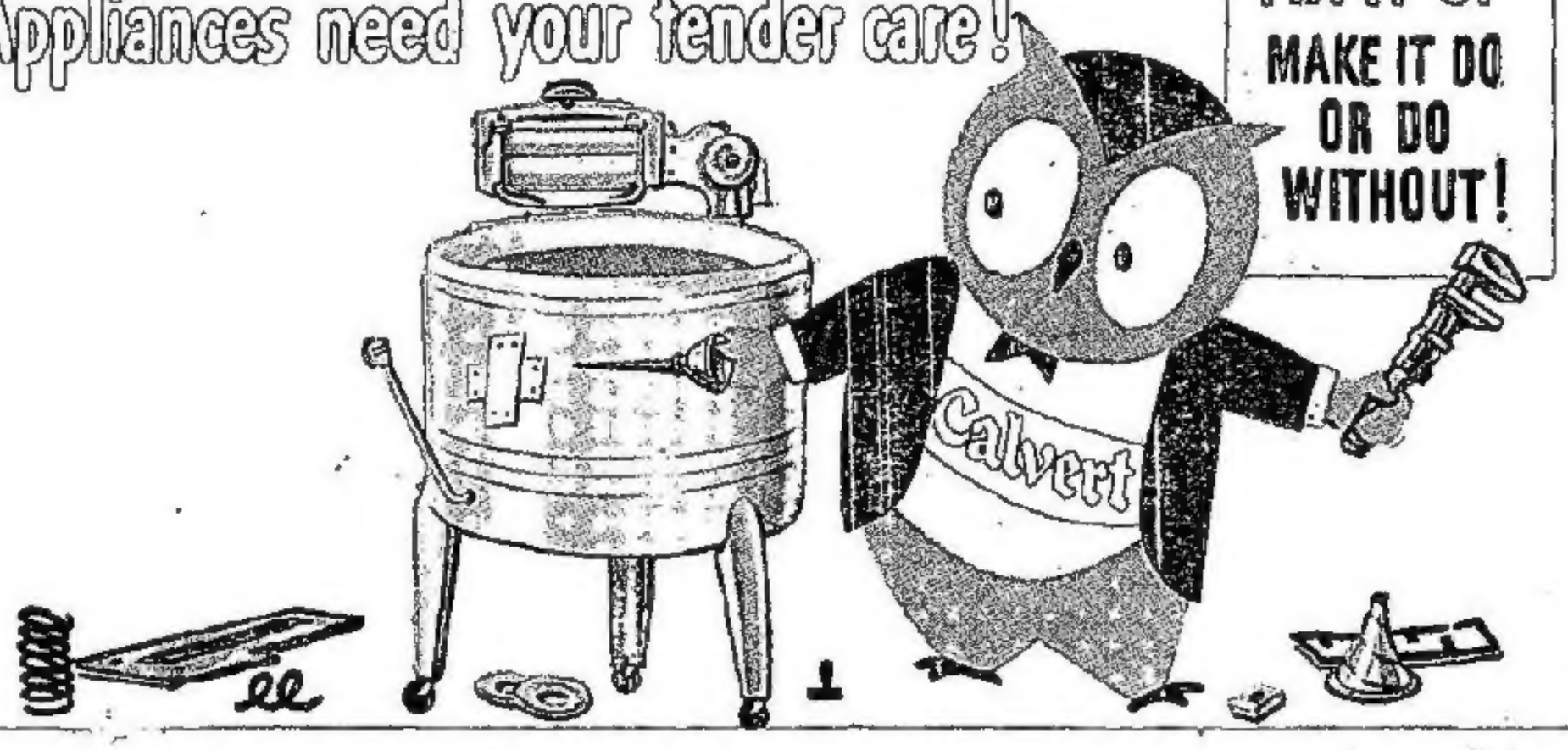

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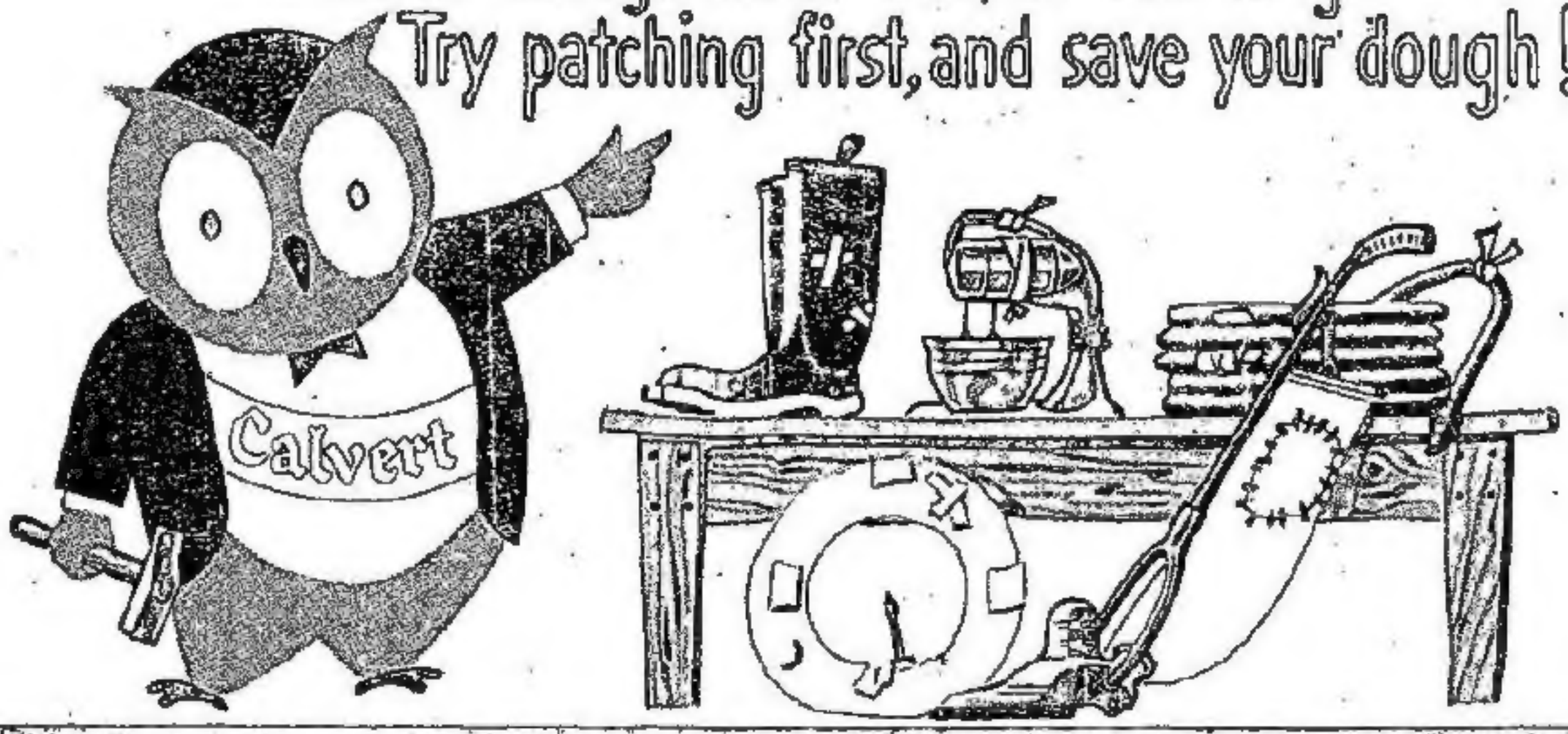

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